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DCN 77-100-152-02

AIR MONITORING REPORT
FOR
C-b SHALE OIL PROJECT
MARCH 1977
REPORT NO. 31

20 June 1977

Presented to:
C-b Shale Oil Project
United Bank Tower
Denver, Colorado 80202

Prepared by:
Radian Staff

II B-1098

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I. GENERAL DESCRIPTION OF AIR MONITORING PROGRAM

Radian Corporation, under contract to the C-b Oil Shale Project, is performing the data compilation and reporting of air quality and meteorological data at one monitoring site in Northwest Colorado. The site measures and records concentrations of particulates, sulfur dioxide, oxides of nitrogen, hydrogen sulfide, total hydrocarbons, methane, and carbon monoxide. A 200-foot meteorological tower provides wind direction, wind speed, temperature, and relative humidity data at four levels (8, 30, 100, and 200 feet). Other meteorological variables measured at the tower site are insolation, barometric pressure, and precipitation.

Figure I shows the configuration of the monitoring station. The station provides a sturdy and protective covering for the monitoring equipment.

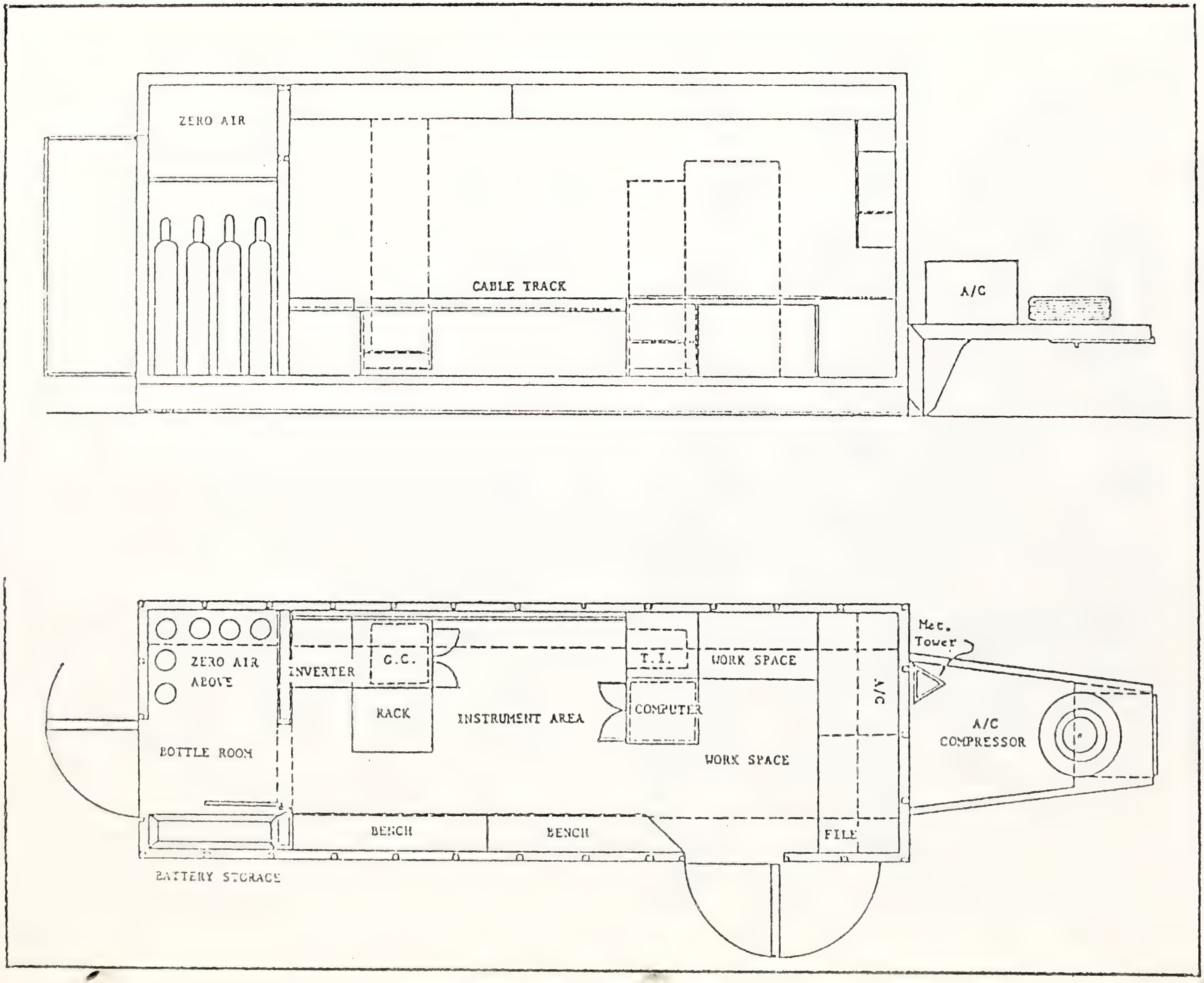
ZERO AIR
CABLE TRACK
A/C
ZERO AIR ABOVE
BOTTLE ROOM
BATTERY STORAGE
INVERTER
G.C.
RACK
INSTRUMENT AREA
BENCH
BENCH
T.I.
COMPUTER
WORK SPACE
WORK SPACE
A/C
FILE
Met. Tower
A/C COMPRESSOR

FIGURE I. CONFIGURATION OF MONITORING STATION

II. DESCRIPTION OF INSTRUMENT SYSTEMS

A. Air Quality Instrumentation

Nitrogen oxides are measured with a Meloy Model NA520 analyzer. This dual-channel analyzer is based on the chemiluminescent principle and continuously monitors both NO_x and NO. A subtraction circuit in the instrument provides a continuous NO_2 output, but is not used in Radian's system. NO_2 is calculated once a second by the computer by subtracting the NO value from the NO_x value, thus avoiding any drift which might occur in the NO_2 output of the instrument. This instrument has a minimum detectable sensitivity of 5 ppb (parts per billion) and a linearity of ±1%.

Both sulfur dioxide and hydrogen sulfide are measured with Meloy Model SA185 sulfur analyzers. The hydrogen sulfide analyzer uses a Meloy Model NO_x-1 sulfur dioxide scrubber and the sulfur dioxide analyzer uses a Meloy Model H_2S-1 hydrogen sulfide scrubber. The Model SA185 is a continuous analyzer and utilizes the flame photometric principle of operation. The minimum detectable sensitivity is 5 ppb and the linearity is ±1%.

Ozone is measured with a Meloy Model OA350 analyzer. This instrument, based on the chemiluminescent principle, provides continuous measurement of ozone. The minimum detectable sensitivity is 0.5 ppb and the linearity is ±1%.

Total hydrocarbons, methane, and carbon monoxide are monitored with a Bendix Model 8200 gas chromatograph analyzer. This instrument, which uses a plume ionization detector, has a minimum detectable sensitivity of 5 ppb for all three components. The Model 8200 works on a five-minute cycle, i.e., one air sample is analyzed every five minutes, and the results are displayed for five minutes via a sample and hold circuit.

The air sample is drawn in through a glass cane and manifold supplied by the Ace Glass Company. The system has a 25mm diameter, through which a constant air flow is provided by an air pump rated at 60 cfm at 0" head pressure. The manifold has sampling ports to which 1/4" teflon lines to the instrument are connected. All joints in the sampling system are secured by O-ring compression fittings. The manifold is contained in a heated (100°F) chamber to prevent condensation of moisture. The teflon lines from the manifold to the instruments are insulated with 1/8" wall thickness rubber tubing.

The trailer has four heavy duty high volume particulate samplers (Hi-Vols). Fiberglass filter paper is used for the collection of particulate samples, after which each filter is brought to a controlled humidity before weighing. Each Hi-Vol has a flow recorded to permit correction for changes in air flow as the filter becomes loaded with particulates. Each Hi-Vol runs for a 24-hour period (midnight to midnight) and is turned on and off by the computer. The Hi-Vols, which were manufactured by Radian, were designed following guidelines recommended by the Environmental Protection Agency.

In addition to the normal Hi-Vol particulate samples, a duplicate Hi-Vol sample is collected every sixth day on special filter paper for trace element analysis. Once each quarter these samples are composited and analyzed for gross radioactivity and trace element content.

B. Calibration Procedures

The trailer contains a Meloy Model RAD-1 calibration unit. This instrument provides a zero air supply, SO_2 span gas from an SO_2 permeation tube, and NO span gas obtained by precisely

diluting bottled NO span gas. The computer-controlled calibration of all instruments is automatically performed once a day. Each instrument is first switched to zero; the computer monitors the output of each channel and takes a new zero reading after a stable zero signal has been reached. This zero reading is compared by the computer to the zero reading obtained 24 hours before, and if a drift in excess of 10 ppb has occurred, an excess zero drift light for the channel in question is turned on on the System Status Panel. Next, span gas is supplied to each channel and the computer decides when a stable span value has been reached. This value is recorded and compared to the previous day's value. An excess span drift light on the System Status Panel is turned on if a drift exceeding 10 ppb occurs. The instruments are then returned to the monitor mode and after two minutes the computer resumes data taking.

The bottled NO gas used at each site was obtained from Precision Gas Products. Pre-purified grade hydrogen is used in the SO_2 analyzers.

The SO_2 permeation tubes were manufactured by Metronics Association, Inc. Their output has been verified by comparison to the output of National Bureau of Standards tube 10-42. Both SA185 analyzers in each trailer are calibrated with the SO_2 from the permeation tube. This instrument responds to the number of sulfur atoms per molecule; thus, SO_2 can be used to calibrate both the H_2S and SO_2 monitors.

The Model OA350 ozone analyzer has its own calibration system which provides a zero check and a span check. The ozone calibration system is verified by comparison to a calibrated ozone generator maintained in Radian's laboratory in Rifle.

The Model 8200 total hydrocarbon, methane, and carbon monoxide analyzer is calibrated with undiluted span gas obtained from AirCo's Rare and Specialty Gas Division. This span gas contains methane and carbon monoxide in air, the methane being used to calibrate both the total hydrocarbon channel and the methane channel. The Model 8200 is zeroes with air from a Bendix Model 8834 zero air unit. In addition, the instrument is electronically re-zeroed at the start of every five-minute cycle.

The Hi-Vol particulate samplers were calibrated using a Calibration Kit from General Metal Works.

C. Data Acquisition System

The basis of the data acquisition system is a Data General NOVA 1200 minicomputer. The NOVA, which has a basic cycle time of 1.2 μsec, is equipped with automatic program load and power fail/automatic restart features. The computer utilizes 16K 16-bit words of core memory. Analog-to-digital conversion is accomplished via an ADC built by Radian Corporation. The input/output unit for the system is Texas Instrument's KSR 733 keyboard/printer. This model teletype provides keyboard entry and hardcopy printed output. The data are also recorded on a cassette magnetic tape unit with three drives. The cassette unit is utilized for program storage and loading as well as for recording. To reduce wear on mechanical parts, the power to the teletype and cassette units is turned on only when the unit(s) is (are) to be used. Several important functions in the instruments as well as in the computer and the trailer are monitored by means of lights on a System Status Panel. These data lights are written onto cassette tape to monitor the complete status of the system every five minutes. The Data Acquisition System also monitors the presence of 100V power from the power lines. In its absence, the computer, which is powered by batteries, switches all trailer

systems to battery-provided power. If the line voltage is restored before the batteries are discharged to a specified level, the trailer system is switched back to line power.

D. Meteorological Instrumentation

200-Foot Meteorological Tower

The tower has instrumentation at four levels: 8 feet, 30 feet, 100 feet, and 200 feet. At all four levels, there are: wind speed, wind direction, and temperature and relative humidity sensors in a power-aspirated radiation shield. Temperature difference thermistors (also in power-aspirated radiation shields) and their associated circuitry take lapse rate measurements for the 30-foot to 100-foot layer and the 30-foot to 200-foot layer. In addition, this site has a Precision Spectral Pyranometer, a barometer, and a tipping bucket rain/snow gage.

The wind direction and speed apparatus used at each measurement level of the tower is the Model 1074-2 wind sensor by Meteorological Research, Inc. (MRI). This sensor has a 540° potentiometer for wind direction and a light chopper for wind speed. This sensor is rugged, with an all-weather coaxial cup and damped vane assembly. The prototype model has been in operation for years under the most demanding weather conditions, performing continuously with the utmost reliability. The wind sensors on the tower have been specially treated with a black paint which will promote warming of the exposed surfaces of the sensor and thereby reduce ice and snow accumulations on the moving parts of the apparatus. The specifications on the Model 1074-2 are as follows:

Wind Speed

- Starting Threshold: 0.75 mph.
- Response Distance: 18 feet (63% recovery).
- Flow Coefficient: 7.9 feet/Revolution.
- Accuracy: ±0.4 mph or 1% (whichever is greatest)

Wind Direction

- Starting Threshold: 0.75 mph.
- Delay Distance: 4 feet (50% recovery).
- Damping Ratio: 0.5 to 0.6.
- Accuracy (540° system): ±1%.
- Range: 0° to 540°.

The relative humidity and temperature sensors are mounted within a power-aspirated radiation shield at each tower level. All aspirators and sensors are of the Model 840 Series by MRI. The aspirated shielded housing is designed to provide maximum radiation protection to the sensor. Ambient air is drawn into the shield and across the sensors at approximately 15 feet per second. This intake air is essentially sampled from a hemispherical space which is approximately 3-inch radius from the tube opening. Speed of the incoming air at the perhiphery of this hemisphere is approximately 1 mph.

The temperature sensor is comprised of a dual thermistor and resistor network. This circuit provides a linear resistance change with an air temperature change. The relative humidity sensor is placed alongside the temperature elements inside the shield where it is exposed to a constant flow of air. Circulation to both sides of the sensing element produces accurate monitoring with a good response time. The specifications on the sensing elements are as follows:

Temperature

- Accuracy: ±0.25° C.
- Range: -50°C to +50° C.

Humidity

- Accuracy: ±3.0% RH.
- Range: 0% to 100% Relative Humidity.

Measurements of temperature difference are taken for two layers, the 30-foot to 100-foot and the 30-foot to 200-foot layer. The thermistors and circuitry used for these measurements are separate from the thermistors measuring air temperature. The use of separate thermistors and circuitry to measure ΔT allows for much greater accuracy and resolution in the measurements, which is necessary for stability assessments. Two ΔT thermistors are at the 30-foot level, one is at the 100-foot level, and one is at the 200-foot level. All of these ΔT thermistors are mounted within power-aspirated radiation shields. The specifications on the ΔT instrumentation are as follows:

- Accuracy: ±0.1°C.
- Range of ΔT Circuit (Lower Level-Upper Level): +9F° to -9F°.

All instrumentation, except at the ground level, is mounted at the end of 12-foot retractable booms. These booms are 3-inch box beams which are on rollers and can be retracted to the instrument platforms for instrument maintenance.

The meteorological tower itself is a 200-foot Rohn Model 80 Guyed Tower, designed for 40 pounds per square foot wind load with ½" of radial ice per EIA Standard RS-222-B, to

support four levels of meteorological equipment. The material consists of tower sections with a tapered base, three retractable booms 12-feet long, three outside work platforms, an inside ladder for climbing, two base ground kits and one anchor ground kit. The cable-type Safety Climbing Device consists of a cable and attachment mechanisms with a locking sleeve and safety belt. The tower is lighted and painted according to FAA specifications.

The signals from the tower instrumentation are fed from multiple signal cables into transmitters mounted at the base of the tower. After signals have been converted to analog signals, they are fed into a junction box, also at the tower base, where they are assimilated into one coaxial cable. The signals are then run underground within 3" PVC conduit to the A-to-D assembly, where they are processed. The transmitters are shielded and insulated from the elements. The signal cable is run underground in PVC conduit in order to minimize damage from the weather or from various rodents in the region.

The auxiliary equipment at the tower site consists of a heated tipping bucket rain/snow gage, an analog barometer, and a Precision Spectral Pyranometer. The rain/snow gage is the Model P511-E unit by Weather Measure. In the case of this gage, the durability and reliability of a tipping bucket gage are combined with heavy-duty electric heaters to make this an all-purpose precipitation sensor. This gage may be used to measure both snowfall and rainfall. An insulating cover of poly-vinyl chloride and a thermostatic control insure the proper gage temperature. The thermostatic control is adjustable from 0 to 35°C. Snow falling into the inlet funnel is melted. The resulting water (from rain or snow) drains into a precision tipping bucket mechanism which activates a mercury switch each time the bucket fills and tips. The gage is constructed of durable corrosion-resistant materials to provide many years of service. The

specifications for this gage are as follows:

- Orifice: 8 inches.
- Calibration: 0.01 inch.
- Accuracy: 0.5% (Calibrated at 0.5 in/hr).
- Sensor: Chrome-plated tipping buckets.
- Switch: Mercury, 0.1-second closure.
- Heat Control: Thermostat adjustment, 0 to 35°C.

The barometer is the B242 Analog Output Barometer by Weather Measure. This barometer provides an output voltage that is linearly proportional to pressure. The specifications on this instrument, which is mounted inside the monitoring trailer at the site, are as follows:

- Range: Specially designed for the 100 millibar interval from 725 millibars to 825 millibars.
- Resolution: Infinite.
- Linearity: ±0.5 millibar, over the 100 millibar interval.

The pyranometer at the site is the Eppley Precision Spectral Pyranometer. This instrument is used for the measurement of sun and sky radiation totally or in defined wavelength bands. The pyranometer is levelled and mounted atop a wooden stand 4½ feet from the ground surface. Care has been taken to eliminate the effects from all outside influences, such as reflection or shadows, on the pyranometer. The instrument characteristics are as follows:

- Sensitivity: 5 mv. per cal/cm°/min.
- Independence: 300 ohms.
- Temperature dependence: Sensitivity constant to within ±1 percent over the ambient temperature range from -20 to +40°C.

- Linearity: Response linear up to intensities of 4 $cal/cm^2/min$.
- Response time: 1 second (i/e signal).

All instrumentation is factory-calibrated and is field-calibrated at various intervals. Sling psychrometers are used to calibrate the humidity sensors; known temperatures and/or resistances are used to calibrate the thermistors; and an rpm calibrating unit is used to calibrate the anemometers. The wind direction instrumentation is aligned to true north (reference direction) by means of a surveyor's transit.

III. MICROMETEOROLOGICAL AND TERRAIN FEATURES

The Piceance Creek Valley and C-b Shale Oil Tract are situated such that many microscale meteorological phenomena affect the region where the ambient air monitoring unit is located. Trailer 023 and its associated 200-foot meteorological tower are located atop a plateau to the south of the valley, high enough to be affected mostly by gradient flow conditions.

The elevation at the meteorological tower site (Trailer 023) is 6940 feet above sea level. The largest gradients in elevation in this area, of course, occur at the Piceance Creek Valley walls. However, the northern valley walls are slightly steeper than those at the southern boundary of the valley, which then slopes upward gradually toward the C-b Tract. The Piceance Creek Valley decreases in elevation from east to west in this area, so that nighttime katabatic cold-air drainage flows advect from east to west.

Site 023 is approximately 2.5 miles south of the Piceance Creek Valley. This location is relatively high compared to its surroundings, with the nearest point having an elevation greater than 7000 feet being .5 miles to the south of the tower. The tower itself is on the top of a small knoll located between Scandard and Sorghum Gulches. Because of its location and the irregularities of the surrounding terrain, meteorological patterns are varied here.

Wind instrumentation is mounted at four levels of the meteorological tower: 8 feet, 30 feet, 100 feet, and 200 feet. The top level of the tower generally remains in gradient wind flow. That is, the winds at that level are normally generated

by synoptic-scale features and are usually separated from terrain features and micrometeorological circulations. Occasionally, a weak anabatic flow influence is experienced. However, such is not the case with the three lowest measurement levels. To varying degrees, these levels are influenced by both the katabatic and anabatic circulation cells. However, when strong pressure gradient forces exist in the region and the synoptic-scale wind flow is strong, all four tower levels will reflect a gradient wind flow as the winds increase in strength and height.

The terrain atop the plateau is generally barren and fairly rugged, with a few scattered small trees. The topsoil dries rapidly and is very fine, resulting in blowing dust when dry, windy conditions exist. In the Piceance Creek Valley, the terrain is fairly grassy and flat, with steep valley walls on either side. Surface winds are normally rather light in this valley unless channeling effects occur.

During clear nights with rather light pressure gradient-induced winds, rapid radiational cooling will occur in the region because of the barren nature of the terrain and the generally dry character of the air in this portion of the country. As a result, the diurnal range of temperatures will be extremely large. Because of the katabatic flow in the valley, nighttime temperatures will generally be lower in the valley than on the plateau. During the winter, especially, temperatures in the valley may be 20F^{o} lower than they are on the plateau during the early morning hours.

IV. OPERATING TIME ANALYSIS FOR EACH SITE

This section presents the operating statistics for each of the major subsystems contained in the monitoring station. Table I shows the specific number of hours that each of these subsystems were inoperative for the month. The column labeled "DIGITIZING SYSTEM" indicates the entire data acquisition system; therefore, downtime hours appearing in this column means total loss of data. These instances include, in addition to computer downtime, power failures, no power available, and self-automated shutdown periods such as during air conditioner malfunctions.

Calibration time is not considered to be downtime and is, therefore, not included in the downtime figures. The amount of time used in calibrating the instruments is given at the bottom of the downtime analysis table and is reported as total calibration hours for each channel for the entire month. As is evident in the calibration figures, channels can be calibrated independently of one another. No calibration time is given for particulate monitoring since Hi-Vol calibration occurs infrequently and only during the off-duty cycle for each Hi-Vol while another Hi-Vol is taking data.

TABLE 1.

[illegible] SHALE OIL PROJECT

SITE [illegible]

CRITERIA

DATE	[illegible]	NO2	NO	SO2	O3	[illegible]	RH	TEMP	PYR	H2S	VOLT	THC	CH4	CO	WS	PRES	RAIN	PART
8/ 1	0.	0.	6.	0.	0.	0.	24.	5.	0.	0.	0.	1.	0.	24.	0.	0.	0.	0.
8/ 2	1.	1.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
8/ 3	1.	3.	0.	0.	0.	7.	24.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
8/ 4	1.	0.	0.	0.	0.	10.	24.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
8/ 5	1.	2.	2.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
8/ 6	1.	1.	4.	0.	0.	0.	21.	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
8/ 7	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
8/ 8	1.	1.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
8/ 9	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	1.	1.	24.	0.	0.	0.	0.
8/10	2.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	1.	1.	24.	0.	0.	0.	0.
8/11	1.	0.	0.	0.	0.	0.	24.	1.	0.	0.	0.	0.	0.	11.	0.	0.	0.	0.
8/12	1.	1.	1.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8/13	1.	0.	0.	0.	0.	1.	19.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8/14	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
8/15	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8/16	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8/17	1.	1.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8/18	1.	0.	0.	0.	1.	1.	23.	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.	24.
8/19	0.	1.	0.	0.	0.	0.	24.	0.	1.	0.	0.	1.	0.	23.	0.	0.	0.	0.
8/20	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	5.	5.	24.	0.	0.	0.	0.
8/21	1.	1.	0.	0.	0.	0.	24.	0.	0.	0.	0.	7.	7.	15.	0.	0.	0.	0.
8/22	0.	5.	0.	5.	0.	0.	20.	1.	0.	7.	0.	2.	2.	0.	0.	0.	0.	0.
8/23	1.	1.	1.	0.	0.	0.	24.	0.	0.	10.	1.	6.	6.	0.	0.	0.	0.	0.
8/24	1.	1.	0.	0.	0.	0.	21.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
8/25	1.	0.	0.	0.	0.	1.	23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.
8/26	1.	0.	0.	0.	0.	0.	24.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.
8/27	1.	0.	0.	0.	0.	0.	23.	1.	0.	0.	0.	2.	2.	0.	3.	0.	0.	24.
8/28	0.	15.	11.	1.	0.	1.	24.	0.	0.	0.	1.	11.	10.	2.	13.	0.	0.	24.
8/29	1.	12.	12.	0.	0.	0.	10.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	24.
8/30	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	0.	0.	0.	0.	24.
8/31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	5.	5.	0.	0.	0.	0.	24.
CAL TIME		15.	17.	9.	6.	6.	4.	5.	4.	9.	0.	6.	4.	4.	11.	0.	2.	

RADIAN CORPORATION

TABLE 1.

[illegible] HOURS FOR C-B SHALE OIL PROJECT

SITE [illegible]

DATE	[illegible]	CS1	[illegible]	[illegible]	[illegible]	CS2	SO2	RH2	[illegible]	CS3	SO3	RH3	[illegible]	CS4	SO4	RH4	[illegible]	DT1	DT2
5/ 1	3.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 2	[illegible]	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 3	3.	0.	0.	0.	0.	0.	7.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 4	[illegible]	0.	0.	0.	0.	0.	10.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 5	0.	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 6	0.	[illegible]	1.	0.	0.	0.	0.	23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 7	1.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 8	[illegible]	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 9	0.	7.	0.	0.	0.	0.	0.	21.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/10	1.	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/11	1.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/12	1.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/13	3.	1.	0.	0.	0.	0.	6.	17.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/14	1.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/15	1.	0.	0.	1.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/16	1.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/17	0.	0.	7.	0.	0.	0.	8.	20.	0.	0.	5.	0.	0.	0.	0.	0.	0.	0.	0.
5/18	1.	0.	0.	0.	0.	0.	0.	23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/19	1.	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/20	0.	1.	0.	0.	0.	0.	0.	23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/21	0.	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/22	1.	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/23	1.	0.	0.	0.	0.	0.	0.	20.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/24	2.	1.	0.	0.	0.	0.	0.	21.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/25	1.	1.	0.	0.	0.	0.	0.	23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/26	1.	0.	0.	1.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/27	1.	1.	0.	0.	0.	0.	0.	23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/28	1.	1.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/29	1.	0.	0.	0.	1.	0.	0.	10.	0.	0.	0.	1.	0.	0.	0.	0.	0.	2.	2.
5/30	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/31	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
[illegible]		1.	0.	1.	5.	0.	0.	0.	5.	0.	0.	0.	4.	0.	0.	5.	5.	1.	3.

TABLE I.

[illegible] FOR [illegible] SHALE OIL PROJECT

[illegible]

DATE	[illegible]	S1	[illegible]	S2	HD2	VHD2	[illegible]	[illegible]	VHD3	SD1	SD2	SD3	HSD4	SD1	VSD1	HSD2	VSD2	HSD3	VSD3
5/ 1	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/ 2	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/ 3	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/ 4	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/ 5	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/ 6	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/ 7	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/ 8	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/ 9	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/10	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/11	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/12	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/13	0.	0.	0.	0.	0.	0.	0.	0.	0.	19.	19.	19.	19.	19.	0.	19.	0.	19.	0.
5/14	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/15	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/16	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/17	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/18	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.	23.	23.	23.	23.	0.	23.	0.	23.	0.
5/19	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/20	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/21	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/22	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/23	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/24	0.	0.	0.	0.	0.	0.	0.	0.	0.	21.	21.	21.	21.	21.	0.	21.	0.	21.	0.
5/25	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.	23.	23.	23.	23.	0.	23.	0.	23.	0.
5/26	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/27	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.	23.	23.	23.	23.	0.	23.	0.	23.	0.
5/28	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	24.	0.	24.	0.	24.	0.
5/29	0.	0.	0.	0.	0.	0.	0.	0.	0.	17.	17.	17.	17.	17.	0.	17.	0.	17.	0.
5/30	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
[illegible]	77.	77.	77.	77.	77.	77.	0.	0.	0.	107.	107.	107.	107.	107.	77.	107.	77.	107.	0.

V. MONTHLY METEOROLOGICAL SUMMARY

A. Summary of the Meteorological Conditions over North America during March 1977

March 1977 brought warmer than normal temperatures to the eastern two-thirds of the United States. The Rockies and West Coast experienced near normal temperatures. Monthly precipitation totals were quite variable over most sections of the country. The polar front jet stream was somewhat less developed than in earlier months and also changed its orientation. The long wave circulatory pattern for March featured a mean trough in the western United States and a long wave ridge in the eastern United States. The reverse was true during the winter months preceding March. The ridging in the eastern and central sections of the country accounted for the above normal temperatures in those areas during March.

The long wave circulation was zonal (west-east) from the 7th through the 9th and the 16th through the 22nd. Split flow occurred on the 2nd and 3rd, from the 11th through the 13th, and from the 26th through the 30th. Meridional (north-south) flow occurred on the 1st, from the 4th through the 6th, on the 10th, the 14th, and 15th, from the 23rd through the 25th, and on the 31st.

Extratropical low pressure systems were frequent in the United States during March. These low pressure systems typically increase in number during the spring months because of the interaction between warm and cold air. The region most affected by these low pressure systems was from the Rockies eastward through the Great Plains. The dates and locations of these low pressure systems were as follows:

1st:	Southwest
2nd:	Rockies
3rd:	Great Plains
4th-5th:	Great Lakes
7th:	Atlantic Seaboard
9th:	Pacific Northwest
10th-12th:	Great Plains
13th:	Great Lakes
14th:	New England
15th-16th:	West Coast
17th:	Rockies
18th:	Great Lakes
19th:	Northern Rockies
20th:	Great Lakes, Atlantic Seaboard
22nd:	Great Lakes, Atlantic Seaboard
23rd:	New England, Pacific Northwest
24th:	New England, Northern Rockies
25th:	Rockies
27th:	Northern Rockies
28th-30th:	Great Plains
31st:	New England

On a sectional basis, the following temperature and precipitation anomalies existed during March.

Section	Temperature	Precipitation
Northeast	Much above normal	Much above normal
Atlantic Seaboard	Much above normal	Near normal
North Central	Very much above normal	Variable; mostly above normal
Central	Much above normal	Near normal
Southeast	Above normal	Below normal
Southwest	Slightly above normal	Variable
Rockies	Near normal	Variable
West and Pacific Northwest	Near normal	Slightly below normal

B. Summary of the Meteorological Conditions in Northwestern and West Central Colorado during March 1977

Grand Junction, Colorado, sixty miles to the south-southwest of the Tract C-b, received a total of 0.50 inch of precipitation during March, which is 0.25 inch below the monthly normal of 0.75 inch. Grand Junction received 2.3 inches of snow during March. Measurable precipitation occurred on the 1st, 2nd, 10th, 25th, 26th, and 28th. The region received 78 percent of the possible monthly sunshine. Sky cover by cloudiness averaged 5.5 out of a possible 10 during the daylight hours and 4.7 out of a possible 10 during the entire month. The region had eight clear days, thirteen partly cloudy days, and ten cloudy days during the month.

Air mass changes were frequent during March. Eight frontal passages occurred during the month. These frontal passages occurred regularly as an upper-level trough dominated the western United States throughout the month. Temperatures in the Tract C-b were cool due to seasonal influences. Transport winds over the region as a whole were stronger in March than in February. Maritime polar cold frontal passages occurred on the 1st, 8th, 9th, 13th, 16th, 24th, and 27th. A weak continental polar cold frontal passage occurred on the 20th.

C. Summary of the Meteorological Conditions in the Oil Shale Tract C-b Region during March 1977

An upper-level trough which had a mean position over the western United States was responsible for the increased frequency of cold frontal passages and increased number of precipitation occurrences during March. Precipitation occurred on the 1st, 2nd, 17th, 18th, 25th, 26th, and 28th of March. Temperatures in the Tract C-b region were near normal during March compared to the above normal temperatures which occurred in the eastern United States.

Eight cold frontal passages occurred during March. Maritime polar cold frontal passages occurred on the 1st, 8th, 9th, 13th, 16th, 24th, and 27th. A weak continental polar cold frontal passage occurred on the 20th.

The monthly average temperatures recorded at the meteorological tower during March were: 28.4°F at 8 feet; 27.7°F at 30 feet; 27.8°F at 100 feet; and 26.4°F at 200 feet. These averages are approximately 1F° lower than those recorded in February. The warmest days of the month were the 9th, 23rd, and the 24th. The coolest days were the 4th, 5th, and the 29th. The highest temperature recorded at the meteorological tower during March was 56°F at the 8-foot level on the 23rd. The coldest temperature recorded at the meteorological tower was 4°F at the 30-foot level on the morning of the 29th.

Monthly average relative humidities during March were higher than they had been in February in the Tract C-b region. This increase can be attributed to a decrease in monthly average temperatures. At the meteorological tower, the monthly average relative humidities were: 70.2 percent at 8 feet; 74.1 percent at 100 feet; and 69.6 percent at 200 feet. These relative humidities correspond to dew points of 19.5°F, 20.5°F, and 17°F, respectively. The relative humidity sensor at the 30-foot level was inoperative for most of the month. The most humid days of the month were the 2nd, 3rd, 4th, 10th, and 26th. The driest days were the 8th, 9th, 13th, 16th, 23rd, 24th, and 31st.

Wind speeds on the meteorological tower during March were stronger on the average than the winds that prevailed during February. Resultant wind vectors at the meteorological tower during March were as follows: 216.8 degrees at 2.7 miles per hour at 8 feet; 217.3 degrees at 3.9 miles per hour at 30 feet; 220.9 degrees at 4.5 miles per hour at 100 feet; and 226.9 degrees at 5.4 miles per hour at 200 feet.

The scalar average wind speeds associated with these resultant wind vectors were 6, 8, 10, and 11 miles per hour, respectively. The Ekman spiral and Ekman effect, i.e., a veering in direction and increase in speed as a function of increasing height above the surface, were in evidence during most of March. A reference to the March wind rose for the meteorological tower indicates that the winds at that location were primarily southwesterly.

The windiest days of the month at the meteorological tower were the 9th, 10th, 13th, 24th, and the 25th. The days having the lightest winds were the 3rd, 5th, 22nd, and the 26th. The highest five-minute average wind speed recorded at the tower during March was 40 miles per hour at the 200-foot level on the 25th.

Precipitation totals in the Tract C-b Monitoring Network during March were generally below normal. Although precipitation occurrences were more numerous than during February, amounts were light.

Only 0.45 inch of precipitation was recorded at the meteorological tower during March. The largest daily precipitation total recorded in the network during March was 0.13 inch on March 2nd. The greatest five-minute precipitation total recorded during the month was 0.02 inch (a precipitation rate of 0.24 inch/hour), recorded on the 1st, 17th, and 26th. Measurable precipitation (≥.01 inch) was recorded at the meteorological tower on the 1st, 2nd, 17th, 18th, 25th, 26th, and 28th. The precipitation was in the form of snow.

The monthly average station pressure during March was 783.9 millibars at the meteorological tower. This reading is 6.7 millibars lower than the February average station pressure of 790.6 millibars. The highest daily average station pressure occurred on the 5th through the 8th, 11th, 21st, and the 22nd. The lowest daily average station pressures occurred on the 1st, 2nd, 17th, and the 28th.

Cloudiness increased in the Tract C-b region during March, compared to the February cloud cover and insolation statistics. The region received an insolation total of 10,722.4 langleys, which is equivalent to a daily average insolation total of 346 langleys/day. This average is below the normal for March of 440 langleys/day in the Tract C-b region. On a diurnal basis, the greatest solar radiation rates occurred between 1200 and 1300 hours. The greatest daily radiation totals were received on the 15th, 22nd, 23rd, and the 27th. The lowest daily solar radiation totals were received on the 2nd, 4th, 10th, 17th, and the 29th. The greatest five-minute radiation total received during March was 7.80 langleys (a rate of 1.56 langleys/minute), which occurred on the 30th. The largest hourly insolation total received during March was 71 langleys, which occurred on the 27th between 1200 and 1300 hours.

Because of the progressively increasing solar elevations and the increasingly longer periods of daylight that prevailed during March, the total possible solar radiation which could be received during a day increased monotonically throughout the month. Therefore, even though cloudiness increased during March compared to February, the actual amount of solar radiation received also increased.

The increase in cloudiness which affected the Tract C-b during March caused the "very unstable" stability classes to become less common than they had been in February. Using the Pasquill method of stability determination, "D" stability (neutral stability) was the most common stability, occurring during 189 daytime hours, or 54 percent of the time. In decreasing order of frequency, "C" (slightly unstable) stability occurred during 112 hours, or 32 percent of the time, and "B" (very unstable) stability occurred during 46 hours, or 13.1 percent of the time. "A" (extremely unstable) stability occurred during only three daytime hours.

Using the lapse rate method of stability determination ($\frac{dT}{dZ}$), the neutral ("D"), slightly stable ("E"), and extremely stable ("F") stability classes were the most prevalent during March. In general, stable and/or neutral conditions prevailed during the nighttime hours and unstable and/or neutral conditions prevailed during the day. The following table is a diurnal breakdown of the various stability classes. As one proceeds from "A" to "F", the stability class ranges from extremely unstable to extremely stable. The column labeled "number of occurrences" indicates the number of times a particular stability class occurred during the month on an hourly basis. Level I presents the temperature change versus height values ($\frac{dT}{dZ}$) that were considered between 30 feet and 100 feet. Level II indicates the values that were considered between 30 feet and 200 feet.

LEVEL I $(\frac{dT}{dZ})$ 30 feet to 100 feet

Stability Class /Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	No. of Occurrences
A:	0	0	0	0	0	0	0	0	2	8	5	5	4	3	1	3	2	0	0	0	0	0	0	0	33
B:	0	0	0	0	0	0	0	0	7	6	10	9	13	10	11	8	10	5	0	0	0	0	0	0	89
C:	1	0	0	0	0	0	0	1	7	3	2	2	1	6	4	6	6	5	0	0	1	0	0	0	45
D:	8	9	8	8	11	13	9	12	11	12	12	13	12	12	14	14	13	19	9	7	6	8	6	7	253
E:	8	8	5	7	6	4	11	11	2	0	0	0	0	0	0	0	0	2	20	11	11	9	10	8	133
F:	14	14	18	16	14	14	11	6	0	0	0	0	0	0	0	0	0	0	1	12	12	13	14	16	175

A: extremely unstable
B: very unstable
C: slightly unstable
D: neutral
E: slightly stable
F: extremely stable

LEVEL II $(\frac{dT}{dZ})$ 30 feet to 200 feet

Stability Class /Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	No. of Occurrences
A:	1	2	3	3	3	4	4	7	11	13	6	5	4	4	3	3	2	4	1	1	2	5	2	2	95
B:	4	3	1	1	4	2	2	4	9	5	10	9	13	10	13	12	14	17	9	6	3	3	2	2	158
C:	3	3	2	3	1	3	0	4	2	1	1	1	1	5	0	4	5	6	2	2	1	2	2	4	58
D:	6	7	7	5	9	8	10	6	7	10	12	14	12	11	14	12	10	4	15	7	11	5	9	9	220
E:	12	12	13	12	6	5	8	6	0	0	0	0	0	0	0	0	0	0	4	12	11	13	15	12	141
F:	5	4	5	7	8	9	7	3	0	0	0	0	0	0	0	0	0	0	0	3	3	3	1	2	60

Using the standard deviation of the horizontal wind (σ_{Θ}) method of stability determination, "D" stability was the most common stability classification at the meteorological tower at the 200-foot level because of the moderately strong winds that normally occurred at that location. The stability distributions for the 8-, 30-, and 100-foot levels were unavailable due to instrumentation problems.

The bivanes at the 30-, 100-, and 200-foot levels of the meteorological tower indicated a pattern of upward vertical motion (negative vertical directions) during March. Upward vertical motion was more pronounced during the nighttime and early morning hours at the 100-foot level during March (probably because of low wind speeds). Upward motions were less pronounced at the 200-foot tower level during the early morning hours. At the 30-foot level, downward vertical motions were greatest during the daytime hours, a result which is quite unusual considering the proximity of the sensing level to the ground. Upward vertical motions were greatest during late evening and nighttime hours.

No comparison may be made of σ_{Θ} values between the bivanes and standard wind instrumentation because of instrumentation problems.

VI. DATA PRESENTATION AND SUMMARY

This section includes summaries for various recorded data at the monitoring sites. The data presentations indicate the variability of pollutant concentrations and meteorological parameters with location and time. In addition, the presentations indicate the functional dependence of pollutant concentration with wind direction. All data except suspended particulates (24-hour samples) are sampled once each second, but recorded as five-minute arithmetic averages of the one-second samples. This averaging technique tends to smooth instantaneous maximum values, and is especially evident when comparing wind gusts to local weather bureau data.

Inherent to any data acquisition system is random noise both from the recording instruments and quantization in the analog-to-digital conversion. The lower threshold for all analytical instruments is twice the maximum noise level generated by the instruments. This lower threshold is 5 ppb for all instruments, except for the ozone analyzer, for which it is 0.5 ppb. Therefore, any values appearing in the data presentations that are less than 5 ppb indicate only a trace of pollutant in question and should not be construed to be absolute levels. In addition, the recorded quantity is simply random noise and averages tend toward zero. Thus, when concentrations are below the lower threshold of the analytical instruments they may appear as a zero entry in the data presentation which does not indicate absolute zero concentration.

All pollutant data (except for particulate data) is taken at the monitoring site in integer parts per billion (ppb) but is presented here in micrograms per cubic meter ($\mu g/m^3$)

assuming standard temperature and pressure of 25°C and 760 mmHg (1013.2 millibars), respectively. The scale factors required to convert μg/m³ at standard conditions back to ppb for the various pollutants are given in the following table.

POLLUTANT	TO CONVERT μg/m³ AT 25°C AND 760 mmHg TO ppb MULTIPLY BY
NO_x	.534
NO	.534
NO_2	.534
SO_2	.384
H_2S	.723
THC	1.536
CH_4	1.536
CO	.877
O_3	.512

The units of the meteorological parameters are given in the table. It should be noted here that inside temperature is monitored and recorded as a functional part of the system but is not presented in this report.

Table III displays the monthly statistics for each monitoring station for the month. To insure statistical significance, and to reduce the possibility of introducing a bias in the presentation, averages are computed only when at least 50 percent of the samples are present, except for relative humidity and temperature, in which case 75 percent of the samples are required. If less than the required samples are present for a particular parameter, that entry will be blank. The number of

samples present for a particular channel is defined as the total possible number of five-minute samples for the averaging time less the computer downtime less the channel downtime less the channel calibration time. The averages in Table III are arithmetic averages with the following exceptions:

- Wind speed and wind direction are computed using a vector averaging technique where the wind speed is treated as the vector magnitude.
- Particulate averages are computed as the geometric mean.

Table IV displays the daily averages. Again, 50 percent of the five-minute samples are required in order to compute an average except for the cases of relative humidity and temperature which require 75 percent. A blank entry indicates an insufficient number of five-minute samples present for that day. Wind speed, wind direction, and particulate averages are computed the same way as described in Table III.

Table V presents the maximum daily five-minute average retained in the data base as well as the time of occurrence. A five-minute maximum average is printed if any samples are present for that day. Therefore, the maximum five-minute average for a channel which experienced considerable downtime or calibration time during the day in question may be misrepresentative of the maximum expected for that channel on that day.

Table VI indicates the five largest averages for various averaging times. The table shows the period of time covered by the average. Maxima are chosen so that time segments

are independent. The maximum averages reported are found using a 'sliding average' technique with the exception of the 24-hour particulate average, which is computed from midnight to midnight. For averaging times less than or equal to three hours, the sliding average is stepped one five-minute sample at a time. For longer averaging times the step size is twelve samples or one hour. For averaging times less than or equal to one hour 100 percent of the five-minute samples must be present to compute an average. Averaging times greater than one hour require 90 percent. Whether or not a sliding average is computed is solely determined by the number of samples present in that averaging time and is independent of daily and monthly averaging criteria.

To demonstrate the functional dependence of recorded parameters upon wind direction, Table VII shows pollutant concentration displayed in a bi-variate distribution with wind direction. The tables display the total number of five-minute samples occurring in each concentration and wind speed class. The mean concentration for all samples occurring in each wind class are also shown. This distribution demonstrates the dependence of high pollutant concentrations upon wind direction. Appendix A shows the stability wind rose diagrams.

The wind speed classifications used in Appendix A are based on the Beaufort wind scale classification system. This is a system of estimating and reporting wind speeds, invented in the early nineteenth century by Admiral Beaufort of the British Navy. It was originally based on the effects of various wind speeds on the amount of canvas that a full-rigged frigate of the period could carry, but has since been modified and modernized. In its present form for international meteorological use it equates: (a) Beaufort force (or Beaufort number); (b) wind speed;

(c) descriptive terms; and (d) visible effects upon land objects or the sea surface. One land adaptation is the NRM wind scale.

The six basic wind speed classifications used in the report are: 1-3 knots, 4-6 knots, 7-10 knots, 11-16 knots, 17-21 knots, and winds of greater than 21 knots. The following table is a complete description of the Beaufort Wind Scale, taken from Physical Climatology, by Helmut Landsberg, 1969.

BEAUFORT WIND SCALE FOR OBSERVATIONS AT LAND STATIONS

Force	Explanatory Title	Specification for Use	Corresponding Limits of Wind Speed at 10 meters ab.grd.				
			Mi/hr.	Knots	Km/hr.	M/sec.	Ft/sec
0	Calm	Smoke rises vertically	<1	<1	<1	0.3	1
1	Light air	Direction of wind shown by smoke drift, but not by wind vanes	1-3	1-3	1-5	0.3-1.5	1-5
2	Light breeze	Wind felt on face:leaves rustle:ordinary vane moved by wind	4-7	4-6	6-11	1.6-3.3	6-11
3	Gentle breeze	Leaves and small twigs in constant motion;wind extends light flat	8-12	7-10	12-19	3.4-5.4	12-1[illegible]
4	Moderate breeze	Raises dust and loose paper:small branches are moved	13-18	11-16	20-28	5.5-7.9	19-26
5	Fresh breeze	Small trees in leaf begin to sway:wavelets formed on inland waters	19-24	17-21	29-38	8.0-10.7	27-35
6	Strong breeze	Large branches in motion:whistling heard in telegraph wires:umbrellas used with difficulty	25-31	22-27	39-49	10.8-13.8	36-45
7	High wind	Whole trees in motion:inconvenience felt when walking against wind	32-38	28-33	50-61	13.9-17.1	46-56
8	Fresh gale	Breaks twigs off trees:generally impedes progress	39-46	34-40	62-74	17.2-20.7	57-68
9	Strong gale	Slight structural damage occurs (chimney pots and slates removed)	47-54	41-47	75-88	20.8-24.4	69-80
10	Whole gale	Seldom experienced inland:trees uprooted: considerable structural damage occurs	55-63	48-55	89-102	24.5-28.4	81-93
11	Storm	Very rarely experiences:accompanied by widespread damage	64-72	56-63	103-117	28.5-32.6	94-106
12	Hurricane		73-82	64-71	118-133	32.7-36.9	107-121
13			83-92	72-80	134-149	37.0-41.4	122-136
14			93-102	81-89	150-166	41.5-46.1	137-151
15			104-114	90-99	167-183	46.2-50.9	152-166
16			115-125	100-108	184-201	51.0-56.0	167-183
17			126-136	109-118	202-220	56.1-61.2	184-201

Source: Table 36 (p.119) in R.J. List (1951):Smithsonian Meteorological Tables:Smithsonian Miscell.Coll.Vol. 114.

Table VIII demonstrates the diurnal variation of various recorded parameters. Hourly averages are determined by arithmetically averaging five-minute samples, except for wind direction averages which are computed vectorially assuming unit vector magnitudes. Totals in the diurnal wind direction tables are vector averages of the columns and rows. For all parameters, a blank entry in the diurnal variation table indicates that less than half (i.e., less than 6) of the five-minute samples for that hour are present.

All times given in the data presentation are Mountain Standard Time.

To facilitate comparison of recorded concentrations to ambient air quality standards, the following regulations are presented.

TABLE II

FEDERAL AND COLORADO STANDARDS

	Primary	Secondary	Non-Designated Area	Designated Area		
				1973	1976	1980
Particulate						
Annual G. M.	75 $\mu g/m^3$	60 $\mu g/m^3$	45 $\mu g/m^3$	70 $\mu g/m^3$	55 $\mu g/m^3$	45 $\mu g/m^3$
24 Hr. Max.*	260	150	150	200	180	150
Sulfur Oxides						
Annual	80(.03ppm)		--	60(.02ppm)	25(.009ppm)	10(.004ppm)
24 Hr. Max.*	365(.14ppm)		15(.005ppm)	300(.1ppm)	150(.05ppm)	55(.02ppm)
3 Hr. Max.*	--	1300(.5ppm)	--	--	--	--
1 Hr. Max.**	--	--	--	800(.28ppm)	300(.1ppm)	--
Oxidant						
1 Hr. Max.*	160(.08ppm)	160				
8 Hr. Max.*	--	--				
Annual	--	--				
Hydrocarbons						
3 Hr. Max.* 6-9 a.m.	160(.24ppm)	160				
Carbon Monoxide						
Max. 8 Hrs.*	10000(9ppm)	10000				
Max. 1 Hr.*	40000(35ppm)	40000				
Nitrogen Dioxide						
Annual	100(.05ppm)	100				

Units are micrograms per cubic meter and ppm in parenthesis.

*Not to be exceeded more than once per year.

**Not to be exceeded more than once per month.

TABLE III
AVERAGES FOR MARCH 1 THRU 31

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                    TABLE III, AVERAGES FOR MAR   1 THRU 31
      (CONCENTRATIONS=MICROGRAMS PER CUBIC METER; WIND SPEED=MILES PER HOUR;
          TEMPERATURE=DEGREES FAHRENHEIT; WIND DIRECTION=DEGREES WITH RESPECT TO THE NORTH;
          PYRANOMETER=TOTAL LANGLEYS; PRESSURE=MILLIBARS; PRECIPITATION=INCHES)

        NITROGEN OXIDES(NOX)              NITRIC OXIDE(NO)             NITROGEN DIOXIDE(NO2)

SITE     023                       023                             023
          .3                        .2                              .2
------------------------------------------------------------------------------------------------

        SULFUR DIOXIDE(SO2)               PYRANOMETER                  HYDROGEN SULFIDE

SITE     023                       023                             023
          .1                   10722.4                              .3
------------------------------------------------------------------------------------------------

        TOTAL HYDROCARBONS                METHANE                  NON-METHANE HYDROCARBONS

SITE     023                       023                             023
      1090.0                     789.4                           305.6
------------------------------------------------------------------------------------------------

         CARBON MONOXIDE                  OZONE                       BAROMETRIC PRESSURE

SITE     023                       023                             023
       370.9                      78.9                           783.9
------------------------------------------------------------------------------------------------

        TOTAL PRECIPITATION               PARTICULATE

SITE     023                       023
         .05                       6.3
------------------------------------------------------------------------------------------------
```

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                              TABLE III. AVERAGES FOR MAR    1 THRU 31
          (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
               TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
               PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                         WIND SPEED

SITE 023
     (  6-FT)            ( 30-FT)            (100-FT)            (200-FT)
       2.7                 3.9                 4.5                 5.4
------------------------------------------------------------------------------------

                                       WIND DIRECTION

SITE 023
     (  6-FT)            ( 30-FT)            (100-FT)            (200-FT)
     216.6               217.3               220.9               226.9
------------------------------------------------------------------------------------

                                      RELATIVE HUMIDITY

SITE 023
     (  6-FT)            ( 30-FT)            (100-FT)            (200-FT)
       77.2                                    74.1                69.6
------------------------------------------------------------------------------------

                                         TEMPERATURE

SITE 023
     (  6-FT)            ( 30-FT)            (100-FT)            (200-FT)
       26.4                27.1                27.8                26.4
------------------------------------------------------------------------------------
```

TABLE IV
DAILY AVERAGES FOR MARCH 1 THRU 31

TABLE IV. DAILY AVERAGES FOR MAR 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	NITROGEN OXIDES(NOX)	NITRIC OXIDE(NO)	NITROGEN DIOXIDE(NO2)
SITE	023	023	023
DATE			
3/ 1	.0	.0	.0
3/ 2	.0	.0	.0
3/ 3	.3	.0	.3
3/ 4	.3	.0	.3
3/ 5	1.0	1.0	.0
3/ 6	1.7	1.7	.0
3/ 7	.0	.0	.0
3/ 8	.0	.0	.0
3/ 9	.0	.0	.0
3/10	.0	.0	.0
3/11	.1	.0	.1
3/12	.0	.0	.0
3/13	2.1	.9	1.1
3/14	1.4	.6	.7
3/15	.0	.0	.0
3/16	.0	.0	.0
3/17	.0	.0	.0
3/18	.0	.0	.0
3/19	.0	.0	.0
3/20	.0	.0	.0
3/21	1.7	.0	1.7
3/22	1.3	.0	1.2
3/23	.1	.1	.0
3/24	.0	.0	.0
3/25	.0	.0	.0
3/26	.1	.1	.0
3/27	.4	.4	.0
3/28			
3/29			
3/30	.1	.1	.0
3/31	.0	.0	.0

TABLE IV. DAILY AVERAGES FOR MAR 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	SULFUR DIOXIDE(SO2)	PYRANOMETER	HYDROGEN SULFIDE
SITE DATE	023	023	023
3/ 1	.0	376.0	.0
3/ 2	.0	145.8	.0
3/ 3	.2	205.8	.0
3/ 4	.3	166.6	.0
3/ 5	.7	361.1	.0
3/ 6	1.1	437.3	.0
3/ 7	.0	440.7	.0
3/ 8	.7	393.3	.0
3/ 9	.1	226.6	.0
3/10	.0	126.1	.0
3/11	.0	416.0	.0
3/12	.0	476.8	.0
3/13	.0	267.8	.0
3/14	.0	249.6	.2
3/15	.0	508.0	.1
3/16	.0	471.7	.0
3/17	.0	109.6	.0
3/18	.4	217.6	.1
3/19	.0	460.1	.0
3/20	.1	315.0	.0
3/21	.0	496.8	.0
3/22	.0	505.0	.0
3/23	.1	514.2	1.3
3/24	.1	267.5	2.1
3/25	.0	340.5	.0
3/26	.0	283.8	.0
3/27	.0	522.3	.0
3/28	.2	330.0	.2
3/29	.0	176.8	.5
3/30	.0	474.1	3.0
3/31	.0	416.0	2.8

RADIAN CORPORATION

TABLE IV. DAILY AVERAGES FOR MAR 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	TOTAL HYDROCARBONS	METHANE	NON-METHANE HYDROCARBONS
SITE	023	023	023
DATE			
3/ 1	1098.4	683.2	415.2
3/ 2	1105.8	708.9	396.9
3/ 3	1140.7	747.9	392.8
3/ 4	1106.2	763.3	342.9
3/ 5	1167.0	771.9	395.2
3/ 6	1112.4	752.3	360.1
3/ 7	1095.8	750.9	345.0
3/ 8	1081.1	739.5	341.9
3/ 9	1102.7	731.5	371.2
3/10	1099.5	772.7	326.8
3/11	1121.7	785.4	336.3
3/12	1126.9	768.8	358.1
3/13	1080.6	755.7	324.9
3/14	1098.1	784.1	314.0
3/15	1105.2	804.9	300.3
3/16	1080.3	778.8	301.5
3/17	1063.3	756.9	306.4
3/18	1064.0	776.2	287.8
3/19	1093.7	789.3	304.4
3/20	1048.7	800.0	248.7
3/21	1002.6	823.9	178.7
3/22	1004.5	822.3	182.2
3/23	1059.2	834.4	224.8
3/24	1121.7	835.3	286.5
3/25	1091.2	833.1	258.1
3/26	1123.3	859.5	263.8
3/27	1115.5	848.9	266.6
3/28	1056.5	865.9	190.6
3/29	1071.2	875.0	196.7
3/30	1122.5	876.0	246.4
3/31	1129.2	869.2	260.0

TABLE IV. DAILY AVERAGES FOR MAR 1 THRU 31

(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	CARBON MONOXIDE	OZONE	BAROMETRIC PRESSURE
SITE	023	023	023
DATE			
3/ 1		81.6	777.4
3/ 2		73.8	775.1
3/ 3		67.8	781.0
3/ 4		69.7	786.4
3/ 5		77.3	791.6
3/ 6		81.6	795.8
3/ 7		79.1	793.9
3/ 8		73.7	790.0
3/ 9		71.5	781.3
3/10		73.7	778.3
3/11	246.1	74.7	790.6
3/12	256.4	78.4	787.0
3/13	221.9	90.9	778.1
3/14	215.5	77.4	782.4
3/15	184.7	84.5	789.6
3/16	186.0	90.2	782.4
3/17	200.8	85.6	777.7
3/18	331.7	83.2	782.7
3/19		77.4	783.7
3/20		82.3	783.4
3/21		83.1	791.1
3/22	552.9	81.5	791.0
3/23	537.3	82.8	784.3
3/24	527.6	91.9	779.2
3/25	497.3	91.3	778.6
3/26	466.5	73.9	783.6
3/27	419.4	73.0	778.5
3/28	470.1		776.8
3/29	509.0	65.8	778.5
3/30	434.9	73.4	787.1
3/31	365.0	88.8	783.2

TABLE IV. DAILY AVERAGES FOR MAR 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	TOTAL PRECIPITATION	PARTICULATE
SITE	023	023
DATE		
3/ 1	.05	5.0
3/ 2	.13	4.0
3/ 3		1.0
3/ 4		1.0
3/ 5		4.0
3/ 6		12.0
3/ 7		5.0
3/ 8		19.0
3/ 9		8.0
3/10		1.0
3/11		4.0
3/12		2.0
3/13		28.0
3/14		9.0
3/15		2.0
3/16		16.0
3/17	.07	17.0
3/18	.02	
3/19		16.0
3/20		9.0
3/21		7.0
3/22		8.0
3/23		12.0
3/24		27.0
3/25	.05	
3/26	.10	
3/27		
3/28	.03	
3/29		
3/30		
3/31		

TABLE IV. DAILY AVERAGES FOR MAR 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

WIND SPEED

SITE 025

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
3/ 1	5.7	7.5	9.1	10.6
3/ 2	3.9	5.7	7.1	8.0
3/ 3	1.7	3.4	3.6	4.2
3/ 4	2.4	5.7	4.5	5.4
3/ 5	.8	.9	.7	.5
3/ 6	2.3	3.7	5.0	6.6
3/ 7	4.5	6.7	9.1	11.6
3/ 8	3.9	5.2	6.6	8.5
3/ 9	6.7	11.8	14.7	17.5
3/10	11.5	15.7	18.7	20.3
3/11	7.6	10.7	13.0	14.6
3/12	2.5	3.7	4.7	5.3
3/13	9.5	12.3	14.6	17.2
3/14	2.2	3.1	3.7	4.4
3/15	3.3	4.7	5.3	6.0
3/16	6.5	9.0	10.9	12.6
3/17	4.4	6.8	7.0	7.5
3/18	2.4	4.6	6.9	7.2
3/19	7.9	10.9	14.2	16.7
3/20	2.1	3.0	3.7	4.8
3/21	1.6	2.3	3.3	4.3
3/22	.9	2.6	2.9	3.8
3/23	5.6	8.3	10.7	11.7
3/24	9.7	13.1	16.0	18.2
3/25	10.6	13.5	15.7	17.7
3/26	1.3	1.8	2.2	2.5
3/27	3.4	4.7	5.3	6.4
3/28	5.9	8.1	9.3	10.6
3/29	4.5	6.2	7.6	8.7
3/30	1.0	2.4	3.1	3.3
3/31	6.0	7.9	9.3	10.4

TABLE IV. DAILY AVERAGES FOR MAR 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

WIND DIRECTION

SITE 025

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
3/ 1	188.4	186.5	186.3	191.9
3/ 2	255.6	294.2	302.8	305.1
3/ 3	305.4	306.6	315.4	320.6
3/ 4	328.4	329.5	334.6	340.0
3/ 5	284.6	275.5	286.7	291.1
3/ 6	174.8	173.3	184.5	197.1
3/ 7	185.5	181.3	189.2	199.8
3/ 8	200.1	196.7	198.8	205.9
3/ 9	190.9	193.5	197.1	201.5
3/10	337.4	337.6	343.2	344.0
3/11	348.4	349.1	356.1	357.2
3/12	157.2	152.4	151.3	159.1
3/13	189.9	192.4	197.2	203.5
3/14	268.5	264.3	280.4	286.9
3/15	186.7	188.2	188.9	193.3
3/16	189.1	189.1	193.2	197.2
3/17	243.6	244.5	253.1	254.6
3/18	251.7	276.3	280.6	284.3
3/19	202.8	204.1	206.8	216.5
3/20	304.5	306.2	312.8	313.7
3/21	205.5	200.4	206.3	212.3
3/22	152.2	144.5	159.6	173.7
3/23	192.1	191.4	189.3	193.7
3/24	184.4	185.9	189.4	193.9
3/25	190.2	192.0	197.5	201.3
3/26	305.3	302.7	318.9	321.1
3/27	193.8	196.6	202.4	209.5
3/28	271.6	272.1	279.1	281.6
3/29	235.6	233.5	233.8	243.2
3/30	173.9	165.6	161.5	179.4
3/31	224.5	219.6	222.3	233.4

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TABLE IV. DAILY AVERAGES FOR MAR 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

RELATIVE HUMIDITY

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
3/ 1	65.0		66.6	64.4
3/ 2	96.7		99.7	96.0
3/ 3	92.6		96.7	93.7
3/ 4	92.6		97.2	91.6
3/ 5	84.6		90.0	84.8
3/ 6	70.8		75.4	68.7
3/ 7	55.3		58.7	53.3
3/ 8	46.8		46.9	45.4
3/ 9	45.3		48.2	45.5
3/10	96.4		98.1	91.1
3/11	83.6		88.6	82.2
3/12	60.5		73.0	66.9
3/13	48.9		52.7	49.2
3/14	62.7		89.3	84.5
3/15	66.5		69.1	63.3
3/16	46.8		48.4	45.3
3/17	85.5		89.3	81.4
3/18	82.1		86.8	80.2
3/19	64.5		68.7	62.7
3/20	71.6		79.3	75.6
3/21	67.5		72.3	68.9
3/22	55.9		57.9	54.4
3/23	47.1		48.3	45.0
3/24	48.7		52.1	49.4
3/25	72.9		65.7	79.8
3/26	96.1		96.1	94.4
3/27	71.8		75.2	71.5
3/28	77.5		65.5	79.7
3/29	75.6		79.2	
3/30	68.7	59.8	64.6	60.0
3/31	47.2	48.3	51.3	48.5

TABLE IV. DAILY AVERAGES FOR MAR 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

TEMPERATURE

SITE 023

DATE	(6-FT)	(30-FT)	(100-FT)	(200-FT)
3/ 1	31.1	29.7	29.6	27.7
3/ 2	21.5	19.2	18.7	16.7
3/ 3	20.6	19.2	19.3	16.6
3/ 4	17.5	16.3	16.3	14.5
3/ 5	16.7	15.6	17.3	15.3
3/ 6	25.6	24.7	25.8	24.2
3/ 7	35.2	35.4	35.9	35.1
3/ 8	38.9	39.7	40.4	39.3
3/ 9	40.0	40.3	40.8	39.6
3/10	23.4	20.8	20.4	18.7
3/11	21.7	19.8	19.9	17.7
3/12	24.1	23.4	24.1	22.7
3/13	36.9	36.5	36.9	35.5
3/14	22.0	20.8	20.6	18.9
3/15	25.2	24.3	25.0	23.7
3/16	37.1	37.1	37.9	36.9
3/17	29.1	27.7	27.5	25.9
3/18	23.0	21.1	20.6	19.6
3/19	26.1	24.9	25.5	24.2
3/20	27.3	25.6	25.0	23.1
3/21	27.1	26.2	26.3	25.1
3/22	35.8	36.2	36.6	35.8
3/23	42.9	43.8	44.6	43.9
3/24	43.2	43.5	43.5	42.4
3/25	35.3	33.8	33.3	31.8
3/26	30.4	30.2	30.0	28.1
3/27	35.9	35.9	35.9	34.6
3/28	20.1	17.4	17.1	15.9
3/29	16.1	14.1	14.9	13.1
3/30	20.7	22.1	22.1	21.0
3/31	31.6	33.3	32.7	32.5

TABLE V

MAXIMUM FIVE-MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MARCH 1 THRU 31

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          TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
      (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
              TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
              PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                  NITROGEN OXIDES(NOX)

     SITE      023
DATE
------------------------------------------------------------------------------------------
 3/ 1       5.6(14:45)
 3/ 2       1.9( 4:20)
 3/ 3       5.6(14:55)
 3/ 4       1.9( 0:30)
 3/ 5       9.4(14:55)
 3/ 6      11.2(13:05)
 3/ 7        .0( 0:00)
 3/ 8        .0( 0:00)
 3/ 9        .0( 0:00)
 3/10       1.9(20:20)
------------------------------------------------------------------------------------------
 3/11       1.9( 2:00)
 3/12        .0( 0:00)
 3/13       9.4(21:50)
 3/14      11.2( 3:30)
 3/15        .0( 0:00)
 3/16        .0( 0:00)
 3/17        .0( 0:00)
 3/18        .0( 0:00)
 3/19        .0( 0:00)
 3/20        .0( 0:00)
------------------------------------------------------------------------------------------
 3/21       3.7(16:00)
 3/22       5.6(21:40)
 3/23       5.6( 1:10)
 3/24       3.7( 6:50)
 3/25       5.7(11:15)
 3/26       7.5(20:10)
 3/27      11.2( 8:55)
 3/28       7.5( 1:40)
 3/29       1.9(18:30)
 3/30       7.5( 9:10)
------------------------------------------------------------------------------------------
 3/31       1.9(11:15)
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    TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
 (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
          TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
          PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              NITRIC OXIDE(NO)

     SITE        023
DATE
--------------------------------------------------------------------------------
 3/ 1       5.6(14:45)
 3/ 2       1.9( 4:20)
 3/ 3        .0( 0:00)
 3/ 4        .0( 0:00)
 3/ 5       9.4(14:55)
 3/ 6      11.2(13:05)
 3/ 7        .0( 0:00)
 3/ 8        .0( 0:00)
 3/ 9        .0( 0:00)
 3/10        .0( 0:00)
--------------------------------------------------------------------------------
 3/11        .0( 0:00)
 3/12        .0( 0:00)
 3/13       9.4(21:50)
 3/14      11.2( 5:30)
 3/15        .0( 0:00)
 3/16        .0( 0:00)
 3/17        .0( 0:00)
 3/18        .0( 0:00)
 3/19        .0( 0:00)
 3/20        .0( 0:00)
--------------------------------------------------------------------------------
 3/21       1.9(10:00)
 3/22       5.6(21:40)
 3/23       5.6( 1:10)
 3/24       3.7( 6:50)
 3/25       3.7(11:15)
 3/26       7.5(20:10)
 3/27      11.2( 8:55)
 3/28       7.5( 1:40)
 3/29       1.9(18:30)
 3/30       7.5( 9:10)
--------------------------------------------------------------------------------
 3/31       1.9(11:15)
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CORPORATION

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          TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
     (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
           TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
           PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                  NITROGEN DIOXIDE(NO2)

     SITE      023
DATE
--------------------------------------------------------------------------------------------
 3/ 1          .0( 0:00)
 3/ 2         1.9(13:45)
 3/ 3         5.6(14:55)
 3/ 4         1.9( 0:30)
 3/ 5          .0( 0:00)
 3/ 6          .0( 0:05)
 3/ 7          .0( 0:00)
 3/ 8          .0( 0:00)
 3/ 9          .0( 0:00)
 3/10         1.9(20:20)
--------------------------------------------------------------------------------------------
 3/11         1.9( 2:00)
 3/12          .0( 0:00)
 3/13         5.6(13:20)
 3/14         5.6( 5:05)
 3/15          .0( 0:00)
 3/16          .0( 0:00)
 3/17          .0( 0:00)
 3/18          .0( 0:00)
 3/19          .0( 0:00)
 3/20          .0( 0:00)
--------------------------------------------------------------------------------------------
 3/21         5.7(10:05)
 3/22         3.7( 0:00)
 3/23          .0( 0:00)
 3/24         1.9(13:20)
 3/25          .0( 0:00)
 3/26          .0( 0:00)
 3/27          .0( 0:00)
 3/28          .0( 0:05)
 3/29          .0(18:30)
 3/30          .0( 0:00)
--------------------------------------------------------------------------------------------
 3/31          .0( 0:00)
```

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     TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR    1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
        TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
        PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              SULFUR DIOXIDE(SO2)

     SITE        025
DATE
------------------------------------------------------------------------------------------
 3/ 1          .0( 0:00)
 3/ 2          .0( 0:00)
 3/ 3         2.6(16:20)
 3/ 4         2.6( 0:30)
 3/ 5         5.2(17:20)
 3/ 6         5.2( 1:05)
 3/ 7          .0( 0:00)
 3/ 8        33.9( 9:00)
 3/ 9         7.8( 5:50)
 3/10          .0( 0:00)
------------------------------------------------------------------------------------------
 3/11         2.6(23:15)
 3/12         2.6( 2:25)
 3/13         2.6(13:55)
 3/14         2.6( 6:00)
 3/15          .0( 0:00)
 3/16          .0( 0:00)
 3/17          .0( 0:00)
 3/18       100.2(15:55)
 3/19         2.6( 0:15)
 3/20         2.5( 7:20)
------------------------------------------------------------------------------------------
 3/21          .0( 0:00)
 3/22         2.6(14:20)
 3/23        25.4(11:20)
 3/24          .0( 0:00)
 3/25          .0( 0:00)
 3/26         2.6(17:50)
 3/27         2.6( 3:40)
 3/28        49.5(10:55)
 3/29          .0( 0:00)
 3/30          .0( 0:00)
------------------------------------------------------------------------------------------
 3/31          .0( 0:00)
```

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              TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
        (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
                PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                        PYRANOMETER

     SITE      023
DATE
------------------------------------------------------------------------------------------
 3/ 1       5.20(12:15)
 3/ 2       2.55(10:10)
 3/ 3       3.70(10:15)
 3/ 4       4.45(14:45)
 3/ 5       6.75(13:00)
 3/ 6       5.55(12:05)
 3/ 7       5.45(12:25)
 3/ 8       5.45(12:35)
 3/ 9       3.60(13:20)
 3/10       1.85(13:10)
------------------------------------------------------------------------------------------
 3/11       6.20(13:10)
 3/12       5.85(12:40)
 3/13       6.10(12:50)
 3/14       5.50(10:45)
 3/15       6.55(13:00)
 3/16       5.75(12:05)
 3/17       3.80(13:55)
 3/18       7.55(13:05)
 3/19       7.05(13:50)
 3/20       6.75(13:20)
------------------------------------------------------------------------------------------
 3/21       6.20(11:50)
 3/22       5.85(12:00)
 3/23       5.90(12:00)
 3/24       6.65(12:40)
 3/25       6.20(12:00)
 3/26       6.10(14:05)
 3/27       5.95(11:55)
 3/28       7.60(13:35)
 3/29       5.55( 9:55)
 3/30       7.80(11:55)
------------------------------------------------------------------------------------------
 3/31       6.10(11:10)
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          TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
        (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                 TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
                 PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                        HYDROGEN SULFIDE

     SITE       023
DATE
------------------------------------------------------------------------------------------------------
 3/ 1           .0( 0:00)
 3/ 2           .0( 0:00)
 3/ 3           .0( 0:00)
 3/ 4          5.2(10:55)
 3/ 5           .6( 0:00)
 3/ 6           .0( 0:00)
 3/ 7          1.4(13:25)
 3/ 8          1.6(12:50)
 3/ 9          1.4(12:00)
 3/10           .0( 0:00)
------------------------------------------------------------------------------------------------------
 3/11           .0( 0:00)
 3/12           .0( 0:00)
 3/13          1.6(13:25)
 3/14          1.4( 6:25)
 3/15          1.5( 1:20)
 3/16           .0( 0:00)
 3/17           .0( 1:00)
 3/18         15.2(15:35)
 3/19           .0( 0:00)
 3/20           .0( 0:00)
------------------------------------------------------------------------------------------------------
 3/21           .0( 0:00)
 3/22          4.2(11:25)
 3/23          6.9(23:20)
 3/24         24.9(14:05)
 3/25           .0( 0:00)
 3/26           .0( 1:00)
 3/27          1.6(15:50)
 3/28         27.7(10:55)
 3/29          5.5(23:00)
 3/30          5.4( 2:35)
------------------------------------------------------------------------------------------------------
 3/31          6.5( 0:05)
```

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        TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
    (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
          TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
          PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              TOTAL HYDROCARBONS

     SITE     023
DATE
------------------------------------------------------------------------------------------
 3/ 1     1208.7( 9:45)
 3/ 2     1205.6(20:05)
 3/ 3     1310.8(23:30)
 3/ 4     1348.7( 9:40)
 3/ 5     1507.6(10:55)
 3/ 6     1431.9( 4:15)
 3/ 7     1220.3( 7:05)
 3/ 8     1161.1( 7:50)
 3/ 9     1921.1(11:55)
 3/10     1334.4(11:15)
------------------------------------------------------------------------------------------
 3/11     1324.6( 3:25)
 3/12     1249.0(12:30)
 3/13     1216.5(15:25)
 3/14     1091.9(11:30)
 3/15     1258.2( 6:25)
 3/16     1107.0( 9:25)
 3/17     1172.2(14:00)
 3/18     1126.0( 9:10)
 3/19     1178.1(11:45)
 3/20     1173.5(13:40)
------------------------------------------------------------------------------------------
 3/21     1359.8(13:10)
 3/22     1107.1(20:55)
 3/23     1140.3( 8:50)
 3/24     1355.2(13:10)
 3/25     1189.8(15:00)
 3/26     1235.4(11:10)
 3/27     1216.5( 9:20)
 3/28     1161.3(16:20)
 3/29     1458.0(15:45)
 3/30     1256.2(11:20)
------------------------------------------------------------------------------------------
 3/31     1285.2( 9:50)
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       TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR    1 THRU 31
    (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
           TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
           PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                     METHANE

      SITE      023
DATE
--------------------------------------------------------------------------------------------
 3/ 1      1040.0(22:25)
 3/ 2      1121.4( 4:00)
 3/ 3       905.3(10:30)
 3/ 4       927.4( 9:45)
 3/ 5       875.9(11:00)
 3/ 6       782.1( 9:20)
 3/ 7       777.6( 1:30)
 3/ 8       778.9(18:15)
 3/ 9       767.8(18:55)
 3/10       842.7( 7:55)
--------------------------------------------------------------------------------------------
 3/11       861.6( 2:40)
 3/12       852.5( 1:20)
 3/13      1051.1(15:45)
 3/14       913.0( 2:25)
 3/15       859.4( 9:40)
 3/16       886.4(16:00)
 3/17      1036.8(17:00)
 3/18       858.1(20:10)
 3/19       816.0(15:45)
 3/20       963.3( 5:50)
--------------------------------------------------------------------------------------------
 3/21      1121.9(10:10)
 3/22       659.6(11:25)
 3/23       895.7(11:00)
 3/24       553.8(17:25)
 3/25       957.0(23:05)
 3/26       888.9(11:50)
 3/27       577.3( 3:35)
 3/28       924.1(16:55)
 3/29      1240.6(18:10)
 3/30       907.8(11:10)
--------------------------------------------------------------------------------------------
 3/31       376.2(11:35)
```

RADIAN CORPORATION

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            TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
       (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                  TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
                  PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                        NON-METHANE HYDROCARBONS

     SITE      023
DATE
------------------------------------------------------------------------------------------------
 3/ 1       651.9(10:15)
 3/ 2       573.1(17:15)
 3/ 3       566.1(23:30)
 3/ 4       519.0( 5:50)
 3/ 5       636.3(10:55)
 3/ 6      1057.6( 4:15)
 3/ 7       504.7(11:00)
 3/ 8       466.3(10:00)
 3/ 9      1216.5(11:55)
 3/10       561.6(11:15)
------------------------------------------------------------------------------------------------
 3/11       526.1( 3:25)
 3/12       472.8( 8:45)
 3/13       489.7(13:25)
 3/14       958.4(11:30)
 3/15       459.8( 6:25)
 3/16       424.6( 8:55)
 3/17       466.3(14:00)
 3/18       396.6(11:25)
 3/19       398.6(12:25)
 3/20       369.2(13:40)
------------------------------------------------------------------------------------------------
 3/21       547.0(13:10)
 3/22       262.0(20:55)
 3/23       313.2( 8:50)
 3/24       523.6(13:10)
 3/25       359.5(15:00)
 3/26       359.5(11:10)
 3/27       358.9( 9:20)
 3/28       320.3( 6:45)
 3/29       963.4(15:45)
 3/30       362.7(12:50)
------------------------------------------------------------------------------------------------
 3/31       373.1( 9:50)
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RADIAN
CORPORATION

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        TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
          TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
          PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                  CARBON MONOXIDE

     SITE       025
DATE
------------------------------------------------------------------------------------------
 3/ 1       422.8(11:00)
 3/ 2
 3/ 3
 3/ 4
 3/ 5
 3/ 6
 3/ 7
 3/ 8
 3/ 9
 3/10
------------------------------------------------------------------------------------------
 3/11       266.7(12:00)
 3/12       264.4( 0:30)
 3/13       262.1(14:20)
 3/14       254.8( 2:30)
 3/15       227.9(15:00)
 3/16       307.7(18:40)
 3/17       313.4(16:55)
 3/18       432.8(15:40)
 3/19       372.7( 0:00)
 3/20
------------------------------------------------------------------------------------------
 3/21       575.5(15:35)
 3/22      3975.1(10:45)
 3/23      1266.4(11:00)
 3/24       594.1(16:05)
 3/25       700.9(12:00)
 3/26       525.1( 0:50)
 3/27       459.5( 1:00)
 3/28       603.6(15:05)
 3/29      2632.6(16:00)
 3/30       563.7(15:40)
------------------------------------------------------------------------------------------
 3/31       425.1(11:30)
```

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          TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
        (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                 TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
                 PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                          OZONE

    SITE      925
DATE
------------------------------------------------------------------------------------------------
 3/ 1        91.8(14:30)
 3/ 2        84.0( 2:10)
 3/ 3        82.1(14:50)
 3/ 4        76.2(16:20)
 3/ 5        86.0(13:05)
 3/ 6        89.9(11:05)
 3/ 7        86.0(13:10)
 3/ 8        82.1(13:45)
 3/ 9        80.1(14:50)
 3/10        82.1(15:30)
------------------------------------------------------------------------------------------------
 3/11        80.1( 2:25)
 3/12        91.8(12:00)
 3/13       103.5(16:20)
 3/14        91.8(16:10)
 3/15        99.6(15:50)
 3/16        99.6(14:50)
 3/17        95.7( 0:35)
 3/18        93.8( 5:30)
 3/19        82.1( 8:15)
 3/20        93.8(11:10)
------------------------------------------------------------------------------------------------
 3/21        91.8( 9:05)
 3/22        87.9( 7:55)
 3/23        95.7(16:55)
 3/24       107.5(15:55)
 3/25       105.5( 1:40)
 3/26        87.9( 0:15)
 3/27        91.8(17:55)
 3/28       265.7(15:15)
 3/29        80.1(16:35)
 3/30        95.7(16:25)
------------------------------------------------------------------------------------------------
 3/31       103.5( 9:35)
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RADIAN
CORPORATION

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         TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
      (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
             TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
             PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              BAROMETRIC PRESSURE

    SITE      025
DATE
-----------------------------------------------------------------------------------------
 3/ 1      785.0( 0:00)
 3/ 2      786.0(21:50)
 3/ 3      785.0(21:30)
 3/ 4      790.0(22:15)
 3/ 5      795.0(11:15)
 3/ 6      795.0(21:05)
 3/ 7      790.0( 9:20)
 3/ 8      792.0( 6:00)
 3/ 9      789.0( 0:00)
 3/10      787.0(23:20)
-----------------------------------------------------------------------------------------
 3/11      792.0( 8:55)
 3/12      791.0( 0:00)
 3/13      782.0( 0:00)
 3/14      782.0(20:55)
 3/15      791.0( 8:15)
 3/16      769.0( 0:00)
 3/17      783.0(23:50)
 3/18      786.0(23:35)
 3/19      786.0( 0:40)
 3/20      769.0(23:55)
-----------------------------------------------------------------------------------------
 3/21      793.0( 9:25)
 3/22      793.0( 6:55)
 3/23      789.0( 0:00)
 3/24      781.0( 0:00)
 3/25      782.0(19:55)
 3/26      785.0(10:55)
 3/27      784.0( 0:00)
 3/28      779.0(19:35)
 3/29      783.0(23:10)
 3/30      790.0( 9:15)
-----------------------------------------------------------------------------------------
 3/31      787.0( 0:00)
```

```
         TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
   (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
           TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
           PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              TOTAL PRECIPITATION

    SITE     025
DATE
--------------------------------------------------------------------------------
 3/ 1        .02(22:45)
 3/ 2        .01( 0:05)
 3/ 3
 3/ 4
 3/ 5
 3/ 6
 3/ 7
 3/ 8
 3/ 9
 3/10
--------------------------------------------------------------------------------
 3/11
 3/12
 3/13
 3/14
 3/15
 3/16
 3/17        .02(11:25)
 3/18        .01( 6:56)
 3/19
 3/20
--------------------------------------------------------------------------------
 3/21
 3/22
 3/23
 3/24
 3/25        .01( 7:55)
 3/26        .02( 2:45)
 3/27
 3/28        .01( 1:26)
 3/29
 3/30
--------------------------------------------------------------------------------
 3/31
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RADIAN
CORPORATION

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         TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
     (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
           TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
           PYRANOMETERS-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                         WIND SPEED       -       WIND DIRECTION

  SITE 025
 DATE      (  8-FT)                 ( 30-FT)                    (100-FT)                    (200-FT)
------------------------------------------------------------------------------------------------------------
 3/ 1       26.0  190.0(10:10)       31.0   192.0(10:10)        35.0   195.0(10:10)        38.0   198.0(10:10)
 3/ 2       11.0  312.0(14:05)       13.0   307.0(14:05)        16.0   297.0(13:05)        17.0   309.0(13:55)
 3/ 3        7.0  303.0(10:45)        9.0   300.0(12:35)        10.0   309.0(10:45)        10.0   309.0(10:45)
 3/ 4       11.0    3.0(14:40)       15.0     1.0(14:40)        17.0     3.0(14:40)        17.0     1.0(14:40)
 3/ 5        7.0  321.0(12:00)        9.0   318.0(12:00)        10.0   325.0(12:00)         9.0   331.0(10:30)
 3/ 6        9.0  179.0(18:25)       13.0   178.0(18:25)        18.0   178.0(18:25)        20.0   183.0(18:25)
 3/ 7       17.0  216.0(14:40)       22.0   214.0(14:40)        25.0   215.0(14:40)        26.0   200.0(10:55)
 3/ 8       19.0  191.0( 9:45)       24.0   192.0( 9:45)        28.0   195.0( 9:45)        32.0   200.0( 8:05)
 3/ 9       26.0  194.0(10:40)       26.0   194.0(11:20)        31.0   185.0( 6:45)        37.0   189.0( 6:45)
 3/10       23.0  336.0(14:20)       31.0   340.0(14:25)        36.0   346.0(14:25)        39.0   346.0(14:25)
------------------------------------------------------------------------------------------------------------
 3/11       17.0  349.0(11:35)       21.0   347.0(11:00)        24.0   351.0(11:00)        25.0    14.0( 2:20)
 3/12       11.0  181.0(16:55)       13.0   166.0(16:10)        16.0   128.0(21:40)        16.0   173.0(16:10)
 3/13       26.0  194.0(13:20)       31.0   190.0(13:20)        34.0   200.0(12:30)        38.0   203.0(13:20)
 3/14       10.0  288.0(14:30)       14.0   288.0(14:30)        17.0   293.0(14:30)        17.0   292.0(14:30)
 3/15       17.0  192.0(11:15)       20.0   187.0(11:15)        21.0   197.0(11:05)        23.0   200.0(11:05)
 3/16       15.0  200.0(10:35)       24.0   199.0(10:35)        27.0   206.0(10:35)        30.0   207.0(10:35)
 3/17       16.0  216.0( 0:35)       21.0   217.0( 0:35)        26.0   222.0( 0:35)        29.0   226.0( 0:35)
 3/18       14.0  311.0(11:15)       21.0   256.0(11:45)        20.0   264.0(11:45)        25.0   268.0(11:45)
 3/19       17.0  215.0(14:05)       21.0   216.0(14:05)        25.0   206.0(17:25)        27.0   217.0(17:00)
 3/20       19.0  301.0( 4:05)       25.0   297.0( 4:05)        30.0   302.0( 4:05)        32.0   304.0( 4:05)
------------------------------------------------------------------------------------------------------------
 3/21       10.0  196.0(14:55)       13.0   201.0(14:55)        15.0   209.0(14:55)        18.0   202.0(19:40)
 3/22        8.0  198.0(16:20)       10.0   173.0(19:10)        12.0   163.0(20:10)        13.0   200.0( 4:20)
 3/23       17.0  216.0(14:20)       22.0   220.0(14:20)        26.0   221.0(14:20)        27.0   223.0(14:20)
 3/24       20.0  172.0(11:10)       26.0   174.0(20:45)        29.0   179.0(20:45)        33.0   184.0(23:55)
 3/25       24.0  175.0( 0:20)       30.0   176.0( 0:20)        35.0   198.0( 5:35)        40.0   201.0( 5:35)
 3/26        8.0  309.0(11:10)       10.0   305.0(10:50)        11.0   315.0(10:50)        13.0   326.0(11:10)
 3/27       12.0  197.0(17:55)       15.0   195.0(17:55)        17.0   194.0(20:45)        24.0   207.0(19:55)
 3/28       22.0  292.0( 1:05)       29.0   288.0( 1:05)        34.0   292.0( 1:05)        35.0   295.0( 1:05)
 3/29       15.0  225.0(13:00)       19.0   231.0(13:00)        22.0   236.0(13:00)        24.0   246.0(13:00)
 3/30       10.0  172.0(14:30)       14.0   159.0(15:25)        15.0   162.0(14:30)        16.0   168.0(14:50)
------------------------------------------------------------------------------------------------------------
 3/31       19.0  253.0(15:10)       23.0   222.0(11:05)        26.0   240.0(15:10)        28.0   248.0(15:10)
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         TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR   1 THRU 31
   (POLLUTANT CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
          TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
          PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                        RELATIVE HUMIDITY

   SITE 023
DATE     (  6-FT)                   ( 30-FT)                   (100-FT)                   (200-FT)
-----------------------------------------------------------------------------------------------------
3/ 1      100.0(22:10)                                         100.0(20:55)               100.0(23:05)
3/ 2      100.0( 0:00)                                         100.0( 0:00)               100.0( 0:00)
3/ 3      100.0( 0:10)                                         100.0( 0:00)               100.0(22:25)
3/ 4      100.0( 4:50)                                         100.0( 0:00)                99.0(23:25)
3/ 5       99.0( 1:50)                                         100.0( 0:00)               100.0( 3:10)
3/ 6       85.0( 0:40)                                          88.0( 1:30)                81.0( 2:05)
3/ 7       68.0( 2:30)                                          70.0( 2:35)                63.0( 0:00)
3/ 8       57.0(22:05)                                          57.0( 0:00)                52.0( 0:00)
3/ 9       62.0(23:55)                                          67.0(23:55)                68.0(23:55)
3/10      100.0(20:05)                                         100.0( 2:20)                98.0(19:25)
-----------------------------------------------------------------------------------------------------
3/11      100.0( 2:00)                                         100.0( 0:00)                97.0( 3:10)
3/12       91.0( 1:45)                                          94.0( 4:05)                86.0( 2:15)
3/13       65.0(23:45)                                          70.0(23:25)                68.0(23:25)
3/14       98.0(23:20)                                         100.0(14:05)                98.0(23:50)
3/15      100.0( 1:20)                                         100.0( 0:00)                99.0( 0:15)
3/16       57.0( 0:45)                                          56.0( 2:45)                50.0( 2:45)
3/17      100.0( 8:25)                                         100.0( 6:40)                99.0( 8:00)
3/18      100.0( 1:30)                                         100.0( 0:00)                99.0( 7:15)
3/19       86.0( 0:05)                                          88.0( 5:45)                80.0( 5:10)
3/20       91.0( 6:50)                                         100.0( 8:15)                98.0( 8:45)
-----------------------------------------------------------------------------------------------------
3/21       86.0( 5:50)                                          86.0( 1:15)                84.0( 1:15)
3/22       72.0( 3:50)                                          71.0( 1:55)                68.0( 2:40)
3/23       58.0( 1:45)                                          58.0( 2:00)                51.0( 1:50)
3/24       54.0( 0:55)                                          55.0( 6:15)                53.0(11:00)
3/25      100.0( 8:35)                                         100.0( 6:20)               100.0( 7:35)
3/26      100.0( 0:00)                                         100.0( 0:00)               100.0( 0:00)
3/27       95.0( 0:00)                                          97.0( 7:00)                90.0( 1:30)
3/28      100.0( 1:00)                                         100.0( 0:05)               100.0( 0:10)
3/29       86.0( 1:20)                75.0(20:50)               85.0( 5:45)                79.0( 0:00)
3/30       86.0( 1:30)                74.0( 0:55)               80.0( 0:45)                74.0( 0:50)
-----------------------------------------------------------------------------------------------------
3/31       65.0( 0:20)                64.0( 2:00)               62.0( 1:35)                56.0( 1:30)
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TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAR 1 THRU 31
(UNITS:CONCENTRATIONS=MICROGRAMS PER CUBIC METER; WIND SPEED=MILES PER HOUR;
TEMPERATURE=DEGREES FAHRENHEIT; WIND DIRECTION=DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER=TOTAL LANGLEYS; PRESSURE=MILLIBARS; PRECIPITATION=INCHES)

TEMPERATURE

SITE [illegible]

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
3/ 1	45.0(11:40)	39.0(11:40)	39.0(14:55)	37.0(11:40)
3/ 2	27.0(15:50)	23.0(12:40)	22.0(12:45)	22.0(13:05)
3/ 3	28.0(14:35)	25.0(13:50)	24.0(13:50)	21.0(14:05)
3/ 4	26.0(14:00)	23.0(14:25)	21.0(14:10)	19.0(13:30)
3/ 5	29.0(14:20)	26.0(15:45)	25.0(15:20)	22.0(14:20)
3/ 6	36.0(15:50)	36.0(15:35)	36.0(17:00)	34.0(16:40)
3/ 7	47.0(15:55)	45.0(14:25)	43.0(14:15)	45.0(14:45)
3/ 8	51.0(13:15)	49.0(12:45)	48.0(12:45)	48.0(12:50)
3/ 9	46.0(13:40)	47.0(13:35)	46.0(13:25)	46.0(13:55)
3/10	35.0(0:00)	35.0(0:00)	34.0(0:00)	32.0(0:00)
3/11	31.0(15:35)	27.0(15:35)	26.0(15:10)	23.0(13:10)
3/12	39.0(14:50)	36.0(14:55)	35.0(16:00)	33.0(14:50)
3/13	47.0(13:30)	45.0(12:55)	45.0(13:30)	45.0(13:50)
3/14	30.0(11:15)	26.0(0:00)	27.0(0:00)	25.0(0:00)
3/15	40.0(16:10)	37.0(15:30)	36.0(16:00)	34.0(16:00)
3/16	51.0(15:00)	48.0(15:15)	47.0(15:15)	46.0(16:20)
3/17	40.0(0:35)	39.0(0:35)	39.0(0:35)	37.0(0:30)
3/18	31.0(17:10)	26.0(16:40)	27.0(16:45)	28.0(16:50)
3/19	37.0(14:40)	34.0(15:50)	34.0(16:15)	34.0(16:25)
3/20	36.0(1:20)	33.0(0:00)	33.0(0:00)	31.0(0:00)
3/21	42.0(16:55)	36.0(16:05)	38.0(16:40)	36.0(17:00)
3/22	51.0(16:25)	48.0(15:10)	47.0(16:00)	46.0(16:00)
3/23	56.0(12:50)	54.0(13:35)	53.0(14:15)	52.0(14:20)
3/24	52.0(15:20)	50.0(15:20)	48.0(14:30)	48.0(14:45)
3/25	46.0(1:45)	45.0(0:00)	44.0(0:00)	42.0(0:00)
3/26	42.0(16:30)	40.0(16:30)	38.0(16:20)	37.0(16:30)
3/27	51.0(15:50)	48.0(14:45)	47.0(15:50)	45.0(15:55)
3/28	32.0(0:30)	31.0(0:30)	31.0(0:30)	26.0(0:05)
3/29	25.0(16:10)	22.0(13:45)	21.0(13:45)	21.0(16:35)
3/30	36.0(16:00)	33.0(16:30)	32.0(16:45)	31.0(17:35)
3/31	45.0(15:20)	41.0(14:15)	40.0(16:05)	41.0(16:55)

TABLE VI
THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MARCH 1 THRU 31

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CORPORATION

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TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAR    1-31
              (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                   UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                          WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                          NITROGEN OXIDES[WS: WD]
                                              1-HOUR
SITE                     023

 1. 3/13(20:50-21:50)    4.5[ 9:319]
 2. 3/14( 3:25- 4:25)    4.5[ 3:245]
 3. 3/14( 5:00- 6:00)    4.4[ 5:214]
 4. 3/13(13:05-14:05)    4.2[25:197]
 5. 3/14( 6:55- 7:55)    4.2[ 1: 21]
--------------------------------------------------------------------------------------------------------

                                          NITRIC OXIDE[WS: WD]
                                              1-HOUR
SITE                     023

 1. 3/14( 3:00- 4:00)    3.6[ 3:238]
 2. 3/13(20:50-21:50)    3.3[ 9:319]
 3. 3/14( 0:50- 1:50)    2.8[ 4:229]
 4. 3/14( 5:05- 6:05)    2.5[ 5:212]
 5. 3/13(16:05-17:05)    2.3[20:205]
--------------------------------------------------------------------------------------------------------

                                          NITROGEN DIOXIDE[WS: WD]
                                              1-HOUR
SITE                     023

 1. 3/21(10:00-11:00)    3.7[ 3:   8]
 2. 3/14( 6:45- 7:45)    3.6[ 1:  32]
 3. 3/21(12:25-13:25)    3.4[ 7:255]
 4. 3/22( 8:35- 9:35)    3.4[ 2:152]
 5. 3/21(11:05-12:05)    3.3[ 4:145]
--------------------------------------------------------------------------------------------------------
```

```
TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAR    1-31
          (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
              UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                     WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                   SULFUR DIOXIDE[WS: WD]
                                     1-HOUR
SITE              023

 1. 3/ 8( 8:30- 9:30)  11.5[19:191]
 2. 3/18(15:05-16:05)   8.9[ 7:277]
 3. 3/28(10:20-11:20)   4.1[14:258]
 4. 3/ 6( 4:15- 5:15)   3.0[ 5: 96]
 5. 3/ 5(23:35- 0:35)   2.6[ 2: 63]
------------------------------------------------------------------------------------------

                                   SULFUR DIOXIDE[WS: WD]
                                     3-HOUR
SITE              023

 1. 3/ 8( 8:15-11:15)   4.5[20:194]
 2. 3/18(14:50-17:50)   3.4[ 9:276]
 3. 3/ 6( 3:30- 6:30)   2.2[ 4:106]
 4. 3/ 5(21:15- 0:15)   2.1[ 1:115]
 5. 3/ 8( 7:35-10:35)   1.9[ 4:137]
------------------------------------------------------------------------------------------

                                   SULFUR DIOXIDE[WS: WD]
                                     24-HOUR
SITE              023

 1. 3/ 5- 3/ 6(10:00)   1.7[ 4:170]
 2. 3/ 8- 3/ 9( 7:00)    .8[10:192]
 3. 3/18- 3/19( 8:00)    .5[ 7:238]
 4. 3/ 3- 3/ 4(11:00)    .5[ 2:    ]
 5. 3/27- 3/28( 9:00)    .2[ 9:268]
------------------------------------------------------------------------------------------
```

```
                TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAR   1-31
                           (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                      UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                             WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                            HYDROGEN SULFIDE(WS: WD)
                                                   1-HOUR
SITE              023

 1. 3/31( 3:20- 4:20)    7.1[ 1: 56]
 2. 3/31( 1:25- 2:25)    7.0[ 2: 97]
 3. 3/30(22:20-23:20)    6.9[ 2:191]
 4. 3/30(23:50- 0:50)    6.9[ 4:227]
 5. 3/31( 6:20- 7:20)    6.9[ 1:160]
-----------------------------------------------------------------------------------------------------

                                        TOTAL HYDROCARBONS(WS: WD)
                                             3-HOUR(6-9AM)
SITE              023

 1. 3/31( 6:00- 9:00)1171.9[ 3:150]
 2. 3/27( 6:00- 9:00)1133.4[ 1: 65]
 3. 3/ 3( 6:00- 9:00)1129.0[ 2:291]
 4. 3/15( 6:00- 9:00)1127.2[ 1:309]
 5. 3/ 5( 6:00- 9:00)1124.2[ 1:150]
   PRIMARY STANDARD EXCEEDED  24 TIMES AT SITE 023
  SECONDARY STANDARD EXCEEDED  24 TIMES AT SITE 023
-----------------------------------------------------------------------------------------------------
```

```
                    TABLE VI. THE FIVE MAXIMUM AVERAGES FOR MAR   1-31
                          (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                  UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                        WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                    METHANE(AS: KD)
                                     3-HOUR(6-9AM)
SITE             023

 1. 3/31( 6:00- 9:00) 872.2[ 3:150]
 2. 3/29( 6:00- 9:00) 861.5[ 4:207]
 3. 3/26( 6:00- 9:00) 857.8[ 2:126]
 4. 3/27( 6:00- 9:00) 856.7[ 1: 65]
 5. 3/25( 6:00- 9:00) 831.5[10:197]
   PRIMARY STANDARD EXCEEDED  24 TIMES AT SITE 023
 SECONDARY STANDARD EXCEEDED  24 TIMES AT SITE 023
--------------------------------------------------------------------------------------------------
```

```
                         TABLE VI. THE FIVE MAXIMUM AVERAGES FOR MAR    1-31
                                   (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                       UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                             WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                  NON-METHANE HYDROCARBONS(NS: 40)
                                          3-HOUR(6-9AM)
SITE                023

 1. 3/ 1( 6:00- 9:00) 405.3[ 8:141]
 2. 3/ 3( 6:00- 9:00) 382.3[ 2:291]
 3. 3/ 6( 6:00- 9:00) 379.4[ 3: 78]
 4. 3/ 4( 6:00- 9:00) 371.9[ 0:    ]
 5. 3/ 2( 6:00- 9:00) 370.0[ 3:306]
   PRIMARY STANDARD EXCEEDED  24 TIMES AT SITE 023
 SECONDARY STANDARD EXCEEDED  24 TIMES AT SITE 023
-------------------------------------------------------------------------------------------------------------------------------
```

```
                 TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAR    1-31
                         (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                      UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                           WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                         CARBON MONOXIDE(PS: 60)
                                             1-HOUR

SITE                023

 1. 3/22(10:40-11:40) 932.8[ 2:357]
 2. 3/23(10:55-11:55) 614.3[14:199]
 3. 3/29(17:55-18:55) 612.4[14:219]
 4. 3/29(11:45-12:45) 595.5[11:270]
 5. 3/29(14:20-15:20) 576.1[13:232]
----------------------------------------------------------------------------------------------------
```

```
TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAR   1-31
          (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
      WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                       CARBON MONOXIDE(AS: AD)
                          8-HOUR

SITE            023

 1. 3/22( 9:55-17:55) 581.9[ 5:158]
 2. 3/23(10:55-18:55) 556.8[13:209]
 3. 3/29( 8:55-16:55) 551.3[12:252]
 4. 3/23(19:55- 3:55) 537.4[ 9:178]
 5. 3/20(14:55-22:55) 533.2[ 7:270]
------------------------------------------------------------------------------
```

```
         TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAR    1-31
                            (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                     UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                            WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                         OZONE (WS: WD)
                                            1-HOUR
SITE                 623

 1. 3/24(15:20-16:20) 105.5[18:193]
 2. 3/25( 1:30- 2:30) 104.7[23:191]
 3. 3/24(16:25-17:25) 104.0[15:199]
 4. 3/24(10:55-11:55) 103.5[18:195]
 5. 3/13(16:05-17:05) 102.9[20:205]
----------------------------------------------------------------------------------------------------------
```

```
                    TABLE VI. THE FIVE MAXIMUM AVERAGES FOR MAR    1-31
                   UNITS: CONCENTRATIONS--MICROGRAMS PER CUBIC METER

                                        PARTICULATE
                                          24-HOUR
SITE          123

        1    3/15    28.0
        2    3/24    27.6
        3    3/ 8    19.0
        4    3/17    19.0
        5    3/16    16.0
------------------------------------------------------------------------
```

TABLE VII
FUNCTIONAL DEPENDENCE OF RECORDED PARAMETERS UPON WIND DIRECTION

RADIAN
CORPORATION

```
                  NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

      NITROGEN OXIDES(NOX)                                          C-B SHALE OIL PROJECT
                       TRAILER NO. -  25  PERIOD( 3/ 1/77 TO  3/31/77)

                                                    WIND DIRECTION
                  N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
 CONCENTRATION
   UG/M3
   GT   160 :                                                                                   :
 140 -  160 :                                                                                   :
 120 -  140 :                                                                                   :
 110 -  120 :                                                                                   :
 100 -  110 :                                                                                   :
  90 -  100 :                                                                                   :
  80 -   90 :                                                                                   :
  70 -   80 :                                                                                   :
  60 -   70 :                                                                                   :
  50 -   60 :                                                                                   :
  40 -   50 :                                                                                   :
  30 -   40 :                                                                                   :
  20 -   30 :                                                                                   :
  10 -   20 :                      1                             1    1                          :     3
   LT    10 :   260  153  160  182  266  319  315  464 1157 1367  713  517  422  513  434  551  261 :  7874
   TOTAL    :   260  153  160  182  267  319  315  464 1157 1368  714  517  422  513  434  551  261 :  7877
            ...........................................................................................
   MEAN          0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.    0.
```

```
                    NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

          NITRIC OXIDE(NO)                                                   C-B SHALF OIL PROJECT
                                         TRAILER NO. -  23  PERIOD( 3/ 1/77 TO  3/31/77)

                                                                   WIND DIRECTION
                         N   NNE   NE   ENE    E   ESE   SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW  CALM   TOTAL
 CONCENTRATION
   UG/M**3
   GT     160 :                                                                                               :
 140  -   160 :                                                                                               :
 120  -   140 :                                                                                               :
 110  -   120 :                                                                                               :
 100  -   110 :                                                                                               :
  90  -   100 :                                                                                               :
  80  -    90 :                                                                                               :
  70  -    80 :                                                                                               :
  60  -    70 :                                                                                               :
  50  -    60 :                                                                                               :
  40  -    50 :                                                                                               :
  30  -    40 :                                                                                               :
  20  -    30 :                                                                                               :
  10  -    20 :                          1                               1     1                              :     3
   LT      10 :  200   156   167   165   268   320   318   485  1160  1367   713   317   423   514   435   555   261 :  7904
     TOTAL    :  200   156   167   165   269   320   318   485  1160  1368   714   317   423   514   435   555   261 :  7907
              ...........................................................................................................
      MEAN        0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.
```

```
                           NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

           NITROGEN DIOXIDE(NO2)                                                   C-B SHALE OIL PROJECT
                                        TRAILER NO. -  23  PERIOD( 3/ 1/77 TO  3/31/77)

                                                             WIND DIRECTION
                    N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
 CONCENTRATION
   UG/M**3
    GT   160 :                                                                                    :

 140 -   160 :                                                                                    :

 120 -   140 :                                                                                    :

 110 -   120 :                                                                                    :

 100 -   110 :                                                                                    :

  90 -   100 :                                                                                    :

  80 -    90 :                                                                                    :

  70 -    80 :                                                                                    :

  60 -    70 :                                                                                    :

  50 -    60 :                                                                                    :

  40 -    50 :                                                                                    :

  30 -    40 :                                                                                    :

  20 -    30 :                                                                                    :

  10 -    20 :                                                                                    :

    LT    10 :  260  153  160  182  267  319  315  484 1157 1368  714  317  422  513  434  551  261 : 7677

     TOTAL   :  260  153  160  182  267  319  315  484 1157 1368  714  317  422  513  434  551  261 : 7677
             ...........................................................................................

     MEAN        0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.    0.
```

```
                        NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

          SULFUR DIOXIDE(SO2)                                                     C-B SHALE OIL PROJECT
                                 TRAILER NO. -  23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                             WIND DIRECTION
                  N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     N   WNW    NW   NNW  CALM   TOTAL
CONCENTRATION
  UG/M**3
  GT    140 :                                                                                             :
 130 -  140 :                                                                                             :
 120 -  130 :                                                                                             :
 110 -  120 :                                                                                             :
 100 -  110 :                                                                        1                    :     1
  90 -  100 :                                                                        0                    :     0
  80 -   90 :                                                                        0                    :     0
  70 -   80 :                                                                        0                    :     0
  60 -   70 :                                                                        0                    :     0
  50 -   60 :                                                                        0                    :     0
  40 -   50 :                                                                  1     0                    :     1
  30 -   40 :                                                    1             0     0                    :     1
  20 -   30 :                                                    3     1       0     0                    :     4
  10 -   20 :                                                    0     2       0     0                    :     2
  LT     10 :   276   159   168   195   233   542   331   509  1183  1428   783   570   490   541   451   572   267 : 8346
   TOTAL    :   276   159   168   195   233   542   331   509  1187  1431   783   571   491   541   451   572   267 : 8355
            ..........................................................................................................
    MEAN         0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.     0.
```

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CORPORATION

```
                    NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

      HYDROGEN SULFIDE(H2S)                                                C-B SHALE OIL PROJECT
                              TRAILER NO. =  23  PERIOD( 3/ 1/77 TO  3/31/77)

                                                     WIND DIRECTION
                N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
CONCENTRATION
  (UG/M3)
  GT   150 :                                                                                    :
150 -  140 :                                                                                    :
130 -  140 :                                                                                    :
120 -  130 :                                                                                    :
110 -  120 :                                                                                    :
100 -  110 :                                                                                    :
 90 -  100 :                                                                                    :
 80 -   90 :                                                                                    :
 70 -   80 :                                                                                    :
 60 -   70 :                                                                                    :
 50 -   60 :                                                                                    :
 40 -   50 :                                                                                    :
 30 -   40 :                                                                                    :
 20 -   30 :                                                      1    1                        :     2
 10 -   20 :                                                      0    0    1                   :     1
  LT    10 :  275  164  174  197  280  330  524  452 1116 1012  780  569  502  543  451  581  261 : 8193
  TOTAL    :  275  164  174  197  280  330  524  452 1116 1012  781  570  503  543  451  581  261 : 8196
           ..........................................................................................
  MEAN         0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.    0.
```

```
                         NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

          TOTAL HYDROCARBONS                                                      C-b SHALE OIL PROJECT
                                      TRAILER NO. -  23  PERIOD( 3/ 1/77 TO  3/31/77)

                                                           WIND DIRECTION
                      N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
 CONCENTRATION
   UG/M**3
    GT  4000 :                                                                                     :

 3600 -  4000 :                                                                                    :

 3400 -  3600 :                                                                                    :

 3200 -  3400 :                                                                                    :

 3000 -  3200 :                                                                                    :

 2800 -  3000 :                                                                                    :

 2600 -  2800 :                                                                                    :

 2400 -  2600 :                                                                                    :

 2200 -  2400 :                                                                                    :

 2000 -  2200 :                                                                                    :

 1800 -  2000 :                         1                   2    2    1                            :     6

 1600 -  1800 :                         1                   2    3    0                   1        :     7

     LT  1600 .  200  157  163  185  269  327  322  469 1149 1584  725  322  463  506  422  566  257 : 7946

       TOTAL  :  200  157  163  185  271  327  322  469 1153 1589  726  322  463  506  423  566  257 : 7959
              .........................................................................................

  MEAN/1000      11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.
```

```
                       NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

         LEVEL 1 (CONT)                                                        C-B SHALE OIL PROJECT
                                       TRAILER NO. -  25  PERIOD( 3/ 1/77 TO  3/31/77)

                                                                 WIND DIRECTION
                    N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW CALM  TOTAL
 CONCENTRATION
    UG/ M**3
    GT  2400 :                                                                                             :
 2200 -  2400 :                                                                                            :
 2000 -  2200 :                                                                                            :
 1800 -  2000 :                                                                                            :
 1600 -  1800 :                                                                                            :
 1400 -  1600 :                                                                                            :
 1200 -  1400 :                                                           1                                :     1
 1000 -  1200 :                                                     1     2           2     4              :     9
  800 -  1000 :    85    79    79    80   111   137   104   251   565   617   398   168   169   125   146   176    91 : 3381
  600 -   800 :   173    78    84   105   160   188   214   212   579   769   335   162   288   369   274   386   166 : 4542
  400 -   600 :     2     0     0     0     0     2     4     6     9     2     2     0     7     8     3     4     0 :    49
  200 -   400 :     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
      LT  200 :     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
      TOTAL   :   260   157   163   185   271   327   322   469  1153  1389   738   330   466   506   423   566   257 : 7982
              ..........................................................................................................
       MEAN      758.  807.  799.  785.  779.  784.  785.  798.  790.  793.  810.  804.  785.  766.  785.  786.  786.  790.
```

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```
                        NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

        NON- ETHANE HYDROCARBONS                                                C-B SHALE OIL PROJECT
                              TRAILER NO. -  25  PERIOD( 3/ 1/77 TO  3/31/77)

                                                          WIND DIRECTION
                    N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
  CONCENTRATION
    UG/M**3
    GT  3000 :                                                                                  :
 2800 -  3000 :                                                                                  :
 2600 -  2800 :                                                                                  :
 2400 -  2600 :                                                                                  :
 2200 -  2400 :                                                                                  :
 2000 -  2200 :                                                                                  :
 1800 -  2000 :                                                                                  :
 1600 -  1800 :                                                                                  :
 1400 -  1600 :                                                                                  :
 1200 -  1400 :                                                 1                                :      1
 1000 -  1200 :                         1                  2    2                                :      5
  800 -  1000 :                         1                  2    4    1                   1       :      9
  600 -   800 :                         0                  3   12    0              2    1    1  :     19
    LT   600 :  260  157  163  185  269  327  322  469 1146 1369  725  322  463  504  421  565  257 : 7924
    TOTAL    :  260  157  163  185  271  327  322  469 1153 1388  726  322  463  506  423  566  257 : 7958
             ..........................................................................................
     MEAN      316. 284. 287. 286. 290. 287. 289. 281. 305. 309. 288. 276. 300. 334. 345. 328. 311. 304.
```

```
                         NUMBER OF FIVE-MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

      CARBON MONOXIDE(CO)                                                   C-b SHALF OIL PROJECT
                               TRAILER NO. =  25  PERIOD( 3/ 1/77 TO  3/31/77)

                                                           WIND DIRECTION
                    N  NNE    NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
 CONCENTRATION
   UG/M**3
   GT  4250 :                                                                                    :
3750 -  4000 :                                                                 1                  :     1
3500 -  3750 :                                                                 0                  :     0
3250 -  3500 :                                                                 0                  :     0
3000 -  3250 :                                                                 0                  :     0
2750 -  3000 :                                                                 0                  :     0
2500 -  2750 :                                                       1         0                  :     1
2250 -  2500 :                                                       0         0                  :     0
2000 -  2250 :                                                       0         0                  :     0
1750 -  2000 :                                                       0         0                  :     0
1500 -  1750 :                                                       0         1                  :     1
1250 -  1500 :                                              1        0         0                  :     1
    LT  1250 :  117  110   95  109  148  197  231  391  766  841  574  275  306  247  161  109  160 : 4837
     TOTAL   :  117  110   95  109  148  197  231  391  767  841  575  275  308  247  161  109  160 : 4841
             .............................................................................................
     MEAN       310. 345. 350. 373. 405. 375. 330. 362. 400. 383. 365. 362. 390. 364. 372. 389. 318. 374.
```

```
                      NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

      OZONE (O3)                                                      C-B SHALE OIL PROJECT
                              TRAILER NO. =  25  PERIOD( 3/ 1/77 TO  3/31/77)

                                                              WIND DIRECTION
                 N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW  CALM   TOTAL
CONCENTRATION
  UG/M**3
   GT   240 :                                                                  1                                  :     1

220  -  240 :                                                                  0                                  :     0

200  -  220 :                                                                  1                                  :     1

180  -  200 :                                                                  0                                  :     0

160  -  180 :                                                                  0                                  :     0

140  -  160 :                                                                  0                                  :     0

120  -  140 :                                                                  0                                  :     0

100  -  120 :                                    1     5    35    79    42     2                                  :   160

 80  -  100 :   79    70    82    89   144   145   159   279   698   809   567   165   192   248   190   166    59 :  3941

 60  -   80 :  191    95    87   103   134   185   154   207   408   484   332   152   190   230   237   405   201 :  3793

 40  -   60 :    5     2     5     5     6    12    17    17    25    44    52     7    50    28     7     7     7 :   274

 20  -   40 :    0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     1     0 :     1

   LT    20 :    0     0     0     0     0     0     0     0     4     1     2     8     4     4     0     0     0 :    23

    TOTAL   :  275   165   170   195   288   340   331   506  1168  1417   775   336   436   510   434   581   267 :  8194
            ..............................................................................................................

     MEAN      76.   78.   77.   77.   78.   77.   78.   79.   82.   83.   81.   79.   75.   76.   77.   76.   73.   79.
```

II B-1192

TABLE VIII
DIURNAL VARIATION OF VARIOUS RECORDED PARAMETERS

RADIAN CORPORATION

```
                DIURNAL VARIATION OF NITROGEN OXIDES(UG/M**3)
                 TRAILER NO. = 23   PERIOD( 3/ 1/77 TO  3/31/77)

                                                      HOUR
        1    2    3    4    5    6    7    8    9    10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

   1    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
   2    *    *    *    *    *    *    *    *    *    *    *:   *:   *    *    *    *    *    *    *    *    *    *    *    *     0
   3    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *     0
   4    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *     0
   5    *    *    *    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *     1
   6    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *     1
   7    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
   8    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
   9    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *     0
  10    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *     0
  11    *    *    *    *    *    *    *    *    *    *    *     :   *    *    *    *    *    *    *    *    *    *    *    *     0
  12    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
  13    *    *    *    *    *    *    *                              *:   *:   *    *    *    *    *    *    *    *    *    *     2
  14    *    *    *    *    *    *    *    *    *:   *:   *    *    *    *    *    *:   *    *    *    *    *    *    *    *     1
  15    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *     0
  16    *    *    *    *    *    *    *    *    *    *    *    *    *:   *:   *    *    *    *    *    *    *    *    *    *     0
  17    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
  18    *    *    *    *    *    *    *    *    *    *    *    *    *    *         *    *    *    *    *    *    *    *    *     0
  19    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
  20    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
  21    *    *    *    *    *    *    *    *    *     :   *    *    *    *    *    *    *    *    *    *    *    *    *    *     1
  22    *    *    *    *    *    *    *    *    *    *    *:   *              *    *    *    *    *    *    *    *    *    *     1
  23    *    *    *    *    *    *    *    *    *    *     :   *    *    *    *    *    *    *    *    *    *    *    *    *     0
  24    *    *    *    *    *    *    *    *                   *    *    *    *    *    *    *    *    *    *    *    *    *     0
  25    *    *    *    *    *    *    *    *    *     :   *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
  26    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *     0
  27    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *          0
  28    *    *    *    *    *    *    *    *    *    *                                                                          0
  29                                                         :    :    :    :    :    :    :   *:   *    *    *    *    *     0
  30    *    *    *    *:   *    *    *    *    *     :    :    :    :    :    :    :   *    *    *    *    *    *    *    *     0
  31    *    *    *    *    *    *    *    *    *    *:   *:   *    *    *    *    *    *    *    *    *    *    *    *    *     0
MEAN    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0

               TOTAL NUMBER OF OBSERVATIONS =  6197     MEAN  =        0.

        * DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

        : INDICATES CALIBRATION DURING THE HOUR
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                    DIURNAL VARIATION OF NITRIC OXIDE(UG/M**3)
                    TRAILER NO. = 23  PERIOD( 3/ 1/77 TO  3/31/77)

                                      HOUR
      1   2   3   4   5   6   7   8   9   10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
DAY

  1   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   0
  2   *   *   *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   *   *   0
  3   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   0
  4   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   0
  5   *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   1
  6   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   1
  7   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   0
  8   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   0
  9   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   0
 10   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   0
 11   *   *   *   *   *   *   *   *   *   *   *    :  *   *   *   *   *   *   *   *   *   *   *   *   0
 12   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   0
 13   *   *   *   *   *   *   *                       *:  *:  *   *   *   *   *   *   *   *   *   *   1
 14   *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *:  *   *   *   *   *   *   *   *   0
 15   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   0
 16   *   *   *   *   *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   0
 17   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   0
 18   *   *   *   *   *   *   *   *   *   *   *   *   *   *       *   *   *   *   *   *   *   *   *   0
 19   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   0
 20   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   0
 21   *   *   *   *   *   *   *   *   *    :  *   *   *   *   *   *   *   *   *   *   *   *   *   *   0
 22   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   0
 23   *   *   *   *   *   *   *   *   *   *    :  *   *   *   *   *   *   *   *   *   *   *   *   *   0
 24   *   *   *   *   *   *   *   *               *   *   *   *   *   *   *   *   *   *   *   *   *   0
 25   *   *   *   *   *   *   *   *   *    :  *   *   *   *   *   *   *   *   *   *   *   *   *   *   0
 26   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   0
 27   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *       0
 28   *   *   *   *   *   *   *   *   *   *                                                           0
 29                                            :   :   :   :   :   :   :  *:  *   *   *   *   *   *   0
 30   *   *   *   *:  *   *   *   *   *    :   :   :   :   :   :   :  *   *   *   *   *   *   *   *   0
 31   *   *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   *   *   *   0
MEAN  0   0   0   0   0   0 . 0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0

              TOTAL NUMBER OF OBSERVATIONS =  8127     MEAN =        0.

        * DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

        : INDICATES CALIBRATION DURING THE HOUR
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RADIAN
CORPORATION

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                    DIURNAL VARIATION OF NITROGEN DIOXIDE(UG/M**3)
                     TRAILER NO. - 23   PERIOD( 3/ 1/77 TO  3/31/77)

                                               HOUR
        1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
 DAY

   1    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
   2    *   *   *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   *   *     0
   3    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *     0
   4    *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
   5    *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *     0
   6    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *     0
   7    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
   8    *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
   9    *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
  10    *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
  11    *   *   *   *   *   *   *   *   *   *   *      :  *   *   *   *   *   *   *   *   *   *   *   *     0
  12    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  13    *   *   *   *   *   *   *                       *:  *:  *   *   *   *   *   *   *   *   *   *     1
  14    *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *:  *   *   *   *   *   *   *   *     0
  15    *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
  16    *   *   *   *   *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *     0
  17    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  18    *   *   *   *   *   *   *   *   *   *   *   *   *   *       *   *   *   *   *   *   *   *   *     0
  19    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  20    *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  21    *   *   *   *   *   *   *   *   *      :  *   *   *   *   *   *   *   *   *   *   *   *   *   *     1
  22    *   *   *   *   *   *   *   *   *   *   *:  *           *   *   *   *   *   *   *   *   *   *     1
  23    *   *   *   *   *   *   *   *   *   *      :  *   *   *   *   *   *   *   *   *   *   *   *   *     0
  24    *   *   *   *   *   *   *   *               *   *   *   *   *   *   *   *   *   *   *   *   *     0
  25    *   *   *   *   *   *   *   *   *      :  *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  26    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *     0
  27    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *         0
  28    *   *   *   *   *   *   *   *   *   *                                                             0
  29                                                   :   :   :   :   :   :   :   *:  *   *   *   *   *     0
  30    *   *   *   *:  *   *   *   *   *      :   :   :   :   :   :   :   *   *   *   *   *   *   *   *     0
  31    *   *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
MEAN    0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0

                    TOTAL NUMBER OF OBSERVATIONS =  8097     MEAN  =       0.

           * DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

           : INDICATES CALIBRATION DURING THE HOUR
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RADIAN
CORPORATION

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                 DIURNAL VARIATION OF SULFUR DIOXIDE(UG/M**3)
                  TRAILER NO. - 23  PERIOD( 3/ 1/77 TO  3/31/77)

                                      HOUR
       1   2   3   4   5   6   7   8   9   10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
DAY

  1    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  2    *   *   *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   *   *     0
  3    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *     0
  4    *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
  5    *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *     0
  6    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *     1
  7    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  8    *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  9    *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
 10    *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
 11    *   *   *   *   *   *   *   *   *   *   *    :  *   *   *   *   *   *   *   *   *   *   *   *     0
 12    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
 13    *   *   *   *   *   *   *                       *:  *:  *   *   *   *   *   *   *   *   *   *     0
 14    *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *:  *   *   *   *   *   *   *   *     0
 15    *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
 16    *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *     0
 17    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
 18    *   *   *   *   *   *   *   *   *   *   *   *   *   *       *:  *   *   *   *   *   *   *   *     0
 19    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
 20    *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
 21    *   *   *   *   *   *   *   *   *    :  *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
 22    *   *   *   *   *   *   *   *   *   *   *            :  *   *   *   *   *   *   *   *   *   *     0
 23    *   *   *   *   *   *   *   *   *   *    :  *   *   *   *   *   *   *   *   *   *   *   *   *     0
 24    *   *   *   *   *   *   *   *               *   *   *   *   *   *   *   *   *   *   *   *   *     0
 25    *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *:  *   *   *   *   *   *   *   *     0
 26    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *     0
 27    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *         0
 28    *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *           *   *   *   *   *   *   *     0
 29    *   *   *   *   *   *   *   *   *   *   *   *   *:  *   *   *   *       *   *   *   *   *   *     0
 30    *   *   *   *:  *   *   *   *   *   *   *   *   *   *    :   :  *   *   *   *   *   *   *   *     0
 31    *   *   *   *   *   *   *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
MEAN   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0

                     TOTAL NUMBER OF OBSERVATIONS =  8572     MEAN  =        0.

             * DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

             : INDICATES CALIBRATION DURING THE HOUR
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RADIAN
CORPORATION

DIURNAL VARIATION OF HYDROGEN SULFIDE(UG/M**3)
TRAILER NO. = 23 PERIOD(3/ 1/77 TO 3/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
2	*	*	*	*	*	*	*	*	*	*	*:	*:	*	*	*	*	*	*	*	*	*	*	*	*	
3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	
4	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	
5	*	*	*	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	
6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	
7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
8	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
9	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	
10	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	
11	*	*	*	*	*	*	*	*	*	*	*	:	*	*	*	*	*	*	*	*	*	*	*	*	
12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
13	*	*	*	*	*	*	*						*:	*:	*	*	*	*	*	*	*	*	*	*	
14	*	*	*	*	*	*	*	*	*:	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
15	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	
16	*	*	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	
17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
18	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*:	*	*	*	*	*	*	*	*	
19	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
20	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
21	*	*	*	*	*	*	*	*	*	:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
22	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*								
23											:	*	*	*	*	*	*	*	*	*	*	*	*	*	
24	*	*	*	*	*	*	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	
25	*	*	*	*	*	*	*	*	*	:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
26	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	
27	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
28	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	
29	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*	*	*	*	*	
30	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	:	:	*	*	*	*	*	*	*	/	
31	7	*	/	*	7	*	*	*	*	*:	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	
MEAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

TOTAL NUMBER OF OBSERVATIONS = 8418 MEAN = 0.

* DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

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          DIURNAL VARIATION OF TOTAL HYDROCARBONS(UG/M**3 X 10**-1)
               TRAILER NO. = 23  PERIOD( 3/ 1/77 TO  3/31/77)

                                                        HOUR
         1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

  1    108  108  108  106  108  107  106  109  109  113  116  114  111  111  111  111  111  110  107  107  106  107  108  108    109
  2    107  107  106  108  109  109  109  108  106  110  112  106  107  110  110  109  110  110  114  116  117  116  114  113    110
  3    112  112  112  112  111  111  111  111  110  124  122  117  115  117  117  117  114  112  112  111  111  111  110  112    114
  4    110  110  110  110  111  113  110  110  111  120  125 :107  108  110  110  110  110  109  108  108  107  109  108  109    110
  5    111  110  110  110  109  109  110  112  114  121  138  137  134  132  119  122  120  115  112  111  109  109  109  107    116
  6    107  107  108  108  118  107  107  109  112  118  119  118  117  116  114  111  111  110  109  106  106  107  107  106    111
  7    108  107  106  106  105  106  107  109  110  113  115  117  115  112  113  111  109  108  106  107  107  106  107  105    109
  8    107  109  108  107  107  106  106  109  112  112  110  110  109  109  109  111  103  108  108  106  107  105  102  103    108
  9    104  105  105  103  105  111  111  105  107  106  108  135  158  133  106  106  108  104  111  104  101  100   90  100    110
 10     97  100   99  105  102  106  106  108  110  107  109  130 :120  116  115  112  109  111  110  109  112  112  111  110    110
 11    110  110  113  112  111  109  109  109  115  115  116      :113  113  114  114  111  111  110  108  113  109  110  113    112
 12    110  115  110  108  109  108  107  108  111  113  117  117  117  114  113  112  111  108  107  106  107  107  106  101    110
 13    104  102  103  109  106  105  106                           109  112  111  112  110  109  106  104  104  111  109  108    108
 14    106  106  105  104  106  106  106  106  109  113  117  121  109  108  109  109  109  110  109  109  109  109  109  109    109
 15    109  109  110  110  110  110  112  111  114  117  115  108  109  110  113  112  111  110  108  106  107  107  107  108    110
 16    109  107  107  107  107  107  107  106  111  113  113  112  110 :107 :108  109  106  105  105  105  105  106  106  104    108
 17    106  106  107  106  106  104  103  102  106  107  106  108  107  110  108  108  104  107  103  104  105  105  105  106    106
 18    106  105  105  105  105  106  105  107  107  106  106  109  108  109       103  102  105  105  107  107  105  106  105    106
 19    105  105  106  107  106  106  106  108  111  114  115  114  113  113  114  112  110  112  108  105  107  105  108  106    109
 20    103  105  105  105  106  108  105  105  105  106  104   99  111  105  102  102  105        97   99            107  108    105
 21    110  109  105  105  101  105                     :  99   99   95                :  97   98   97   97   96   96   97   97    100
 22     98   98   97   97   97   98   97   91   99   94   98 :103  104  104  101  105  105  104  104  104  105   98        99    100
 23          101        92                                  :101  105  109  111  111  106  106  108  108  108  108  109  111    107
 24    110  110  109  110  110  111  108  108                 108  111  131  123  114  112  111  109  110  108  111  112  111    112
 25    111  111  110  109  109  109  107  106  108  108  109  111  110  106  111  111  108  107  109  107  106  106  108  110    109
 26    111  111  112  111  112  116  110  111  114  117  118  119  116  116  118  107  108  109  110  109  109  110  108  108    112
 27    108  109  110  109  109  109  110  113  116  117  118  117  117  109  114  114  112  103  110  111  108  106  104         111
 28    102                 105  104  104  109  112  107      :101  111  104       106  108                      102  103  102    106
 29    105  103  102  102  102  101  102  105  110  115  100  102  103  108    :    : :109      :116  106  109  110  111  110    106
 30    109  109  110      :106  106  108  111  105  109  110  117  120       115  112  110  114  114  113  114  113  113  113    112
 31    113  113  113  112  114  115  115  117  119  121  118  105  109  115  115  116  115  111  107  105       101  109  104    113
MEAN   105  107  107  107  106  107  107  108  111  113  113  113  113  113  112  111  109  109  108  107  107  107  107  107

                    TOTAL NUMBER OF OBSERVATIONS =  6102     MEAN  =    110.

       : INDICATES CALIBRATION DURING THE HOUR
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DIURNAL VARIATION OF METHANE(UG/M**3 X 10**-1)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	70	70	67	67	63	65	62	74	67	67	63	69	68	63	74	68	70	69	69	66	61	68	78	69	68
2	68	66	66	66	75	70	71	74	70	67	66	74	72	73	71	71	69	65	69	76	75	76	74	74	70
3	74	72	71	73	75	72	75	74	76	78	79	75	76	75	76	76	75	72	73	70	74	76	75	75	74
4	75	73	75	75	73	72	73	74	73	81	83:	79	79	79	76	75	74	76	76	76	76	78	76	76	76
5	78	79	77	77	75	75	76	77	75	75	82	80	78	78	77	77	76	76	74	75	76	76	76	76	77
6	75	75	74	76	75	74	72	69	74	77	76	76	76	75	75	73	76	76	75	76	75	75	74	76	75
7	76	76	76	76	75	74	75	76	75	75	75	74	74	76	76	75	75	75	74	74	71	73	75	75	75
8	75	75	74	73	75	75	75	75	73	72	69	74	75	75	75	74	73	71	73	75	75	73	73	73	74
9	71	73	73	73	74	73	71	73	75	75	74	73	73	71	67	70	71	73	74	74	75	74	73	74	73
10	73	74	75	77	74	73	78	78	78	76	76	77:	78	77	77	77	75	75	77	78	80	80	80	78	77
11	78	75	80	79	78	81	78	77	78	77	80	:	78	79	79	76	76	79	78	77	76	72	78	81	78
12	65	82	78	75	76	77	76	76	71	74	77	77	76	76	74	75	75	74	74	76	76	78	77	77	76
13	74	74	72	71	73	76	76						75	74	73	77	76	77	76	76	75	79	76	75	75
14	72	76	74	78	79	78	78	77	76	80	81	80	79	78	75	80	79	79	77	79	81	79	79	80	78
15	80	81	82	82	81	81	81	81	81	82	82	79	80	80	80	80	79	80	79	79	77	78	79	80	80
16	79	79	80	78	76	76	79	76	77	78	79	79	77:	75:	77	77	77	76	76	78	76	76	77	76	77
17	75	72	76	76	76	75	76	73	76	77	74	73	77	76	73	78	76	77	73	76	75	76	74	75	75
18	76	77	76	76	77	76	77	75	77	75	77	75	77	78		80	78	78	78	78	81	78	75	75	77
19	77	79	77	78	77	78	78	79	78	79	79	79	79	79	80	79	80	79	79	78	78	76	79	79	78
20	79	79	78	78	79	80	79	79	78	79	78	79	82	80	79	80	80		81	81			80	81	79
21	80	83	82	81	81	82				:	85	79	80			:	83	82	82	82	81	81	81	82	82
22	81	81	81	81	81	81	81	82	82	82	82:	84	85	85	82	82	82	81	81	81	81	81		81	82
23		82		81							:	85	84	84	84	83	83	83	83	82	83	83	83	83	83
24	83	83	84	83	83	83	83	83				83	83	83	83	83	83	83	83	83	83	83	83	83	83
25	82	83	83	83	83	83	82	83	83	82	82	83	83	83	83	83	83	83	83	83	83	83	83	85	83
26	86	85	86	86	86	85	85	85	86	86	86	87	86	86	85	86	85	86	85	85	85	85	84	85	86
27	84	85	86	86	85	85	85	85	85	85	85	84	84	84	84	84	84	85	84	84	85	82	82		84
28	83				86	85	86	86	86	87	:	87	87	87		87	87					87	86	87	86
29	87	86	87	87	86	85	85	86	86	87	83	88	86	86	86	87:	87	:	93	88	87	88	87	87	87
30	87	87	87	:	87	88	86	87	88	86	88	89	88		88	88	87	87	87	87	87	87	87	87	87
31	87	87	87	87	87	87	87	87	86	87	86	88	87	86	86	86	86	86	86	87		86	87	86	87
MEAN	76	78	78	78	78	78	78	79	78	79	79	79	79	79	78	79	79	78	78	78	78	79	79	79	

TOTAL NUMBER OF OBSERVATIONS = 6128 MEAN = 79.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF NON-METHANE HYDROCARBONS(UG/M**3 X 10**-1)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	36	38	40	41	45	42	44	35	42	46	52	45	42	48	37	43	41	41	38	41	45	39	29	39	41
2	39	39	40	48	33	38	38	34	38	43	46	32	35	37	38	39	41	45	46	40	42	40	40	38	40
3	38	40	41	38	36	39	37	37	40	45	43	41	39	41	41	40	39	40	38	41	37	35	34	37	39
4	35	37	34	35	37	40	37	36	38	39	40:	27	28	31	34	35	35	34	32	32	31	31	32	33	34
5	33	31	32	33	34	34	34	35	39	46	50	50	56	53	42	45	44	39	37	30	33	33	33	32	39
6	32	33	33	32	43	33	35	40	38	41	43	41	40	40	39	38	35	34	33	31	31	32	33	30	36
7	32	31	30	30	31	33	31	34	35	37	40	44	41	36	37	36	34	34	33	34	36	33	32	31	34
8	32	34	34	34	32	31	31	34	39	39	41	36	35	35	35	37	30	37	36	31	32	33	29	30	34
9	35	32	32	29	31	37	40	29	32	32	34	61	60	62	38	37	37	31	37	30	27	27	17	26	37
10	24	26	24	28	29	27	28	30	32	31	32	53:	41	40	38	35	35	36	33	31	32	32	30	31	33
11	32	35	33	33	32	28	31	31	36	37	36	:	35	34	34	36	35	32	32	32	36	37	32	32	34
12	31	32	32	33	33	31	31	32	40	39	39	39	39	37	39	37	36	34	33	30	29	29	29	24	34
13	30	26	31	32	35	26	29						34	38	38	35	33	33	30	29	30	31	32	33	32
14	36	36	34	25	28	29	27	30	34	34	35	41	30	30	34	29	29	31	31	30	28	30	30	28	31
15	29	26	26	28	29	28	31	31	33	35	33	29	29	30	33	31	32	29	29	27	29	29	28	29	30
16	30	28	27	26	31	31	29	28	35	35	34	33	33:	32:	30	31	29	29	29	27	29	30	28	28	30
17	31	38	32	30	30	28	27	24	30	29	33	36	31	34	35	30	28	30	29	28	30	28	31	31	31
18	29	28	28	29	28	29	28	31	30	31	29	33	31	32		23	24	27	27	29	20	21	31	31	29
19	26	26	29	29	29	28	28	29	35	35	34	34	34	34	34	32	31	33	29	27	28	28	29	26	30
20	21	26	27	27	27	28	26	20	27	26	26	20	29	24	23	22	23		16	18			26	27	25
21	25	26	23	24	19	23				:	14	20	16			:	14	16	15	15	15	15	15	16	18
22	16	16	16	16	16	16	15	9	16	12	16:	19	22	21	19	20	21	23	23	23	23	17		17	18
23		19		11							:	17	21	25	27	28	22	24	25	25	25	24	25	27	23
24	26	27	26	26	21	27	25	25				25	26	48	40	31	29	28	26	26	25	28	29	29	29
25	26	26	27	26	27	26	24	23	26	26	26	28	27	25	28	28	25	24	26	24	22	23	25	25	26
26	26	26	26	25	26	25	25	26	26	31	32	32	30	31	32	22	23	24	25	24	23	24	24	23	26
27	23	24	24	23	24	23	25	28	30	32	32	32	33	25	30	29	28	19	26	27	26	24	22		27
28	20				19	18	19	23	28	20	:	15	24	17		19	21					16	17	16	19
29	17	16	16	15	16	16	17	19	24	26	12	14	17	20:	:	:	22	:	22	20	21	23	24	23	19
30	22	22	23	:	21	18	21	25	17	21	23	28	32		27	24	23	27	27	26	27	26	26	27	24
31	26	26	25	26	27	27	26	29	33	35	32	17	22	26	28	30	29	25	20	19		15	22	18	26
MEAN	29	29	29	29	29	29	29	30	33	34	35	33	34	34	34	32	30	31	30	29	29	28	28	28	

TOTAL NUMBER OF OBSERVATIONS = 1101 MEAN = 31.

: INDICATES CALIBRATION DURING THE HOUR

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                DIURNAL VARIATION OF CARBON MONOXIDE(UG/M**3 X 10**-1)
                   TRAILER NO. = 23  PERIOD( 3/ 1/77 TO  3/31/77)

                                        HOUR
        1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24 MEAN
DAY

 1
 2
 3
 4                                                          :
 5
 6
 7
 8
 9
10                                                               :
11                                                               :  25   25   25   25   24   25   24   24   24   23   24   25     24
12     25   24   23   23   23   24   24   23   23   24   24   24   24   23   23   23   23   22   22   23   23   23   23   23     23
13     22   22   22   22   23   23   22                            21   21   22   22   22   22   22   22   22   22   22   21     22
14     21   21   23   23   22   22   21   21   21   22   22   22   21   21   21   22   21   21   20   21   21   20   21   20     21
15     20   20   20   20   19   19   19   19   19   18   19   17   16   17   18   18   17   17   17   17   17   16   16   17     18
16     17   16   16   16   16   16   16   15   15   16   16   16   16:  22:  22   21   21   21   23   21   20   21   21   20     18
17     20   22   21   19   19   20   19   16   20   20   20   20   19   18   19   21   21   22   20   19   21   18   19   18     20
18     36   35   34   34   32   34   31   33   32   34   35   34   34   32        36   32   32   30   32   30   29   31   33     33
19     31                                                                                                                     31
20
21                                                     :                             :  53   52   51   50   51   51   50   50     51
22     50   50   49   50   49   49   49   49   50   48  100:  55   53   53   53   53   53   53   52   52   53   53   52   52     53
23     51   52   52   52   51   51   52   52   52   50     :  61   54   55   55   55   55   55   54   54   53   53   55   53     53
24     53   54   54   52   52   52   52   53                  54   52   52   52   52   53   53   52   51   53   51   51   51     52
25     51   50   51   50   50   50   50   50   49   48   49   49   51   49   49   48   48   48   49   49   48   48   47   49     49
26     49   45   47   48   48   48   48   47   47   47   47   48   47   46   47   47   46   44   44   43   43   44   45   43     46
27     43   43   43   43   43   43   42   42   43   42   42   42   42   42   40   40   40   41   40   40   39   40   39          41
28     39   40   39   39   39   39   40   38   39   41     :  52   53   54        57   54   53   52   52   51   52   52   50     47
29     50   49   49   50   50   49   49   49   50   50   53   55   58   56   57   56:  53     :  61   45   45   43   43   43     50
30     43   41   42     :  47   46   46   46   47   47   46   43   42   44   43   43   42   41   41   40   40   40   40   39     43
31     39   38   39   38   37   38   37   37   37   37   38   38   37   38   36   36   35   35   35   35   35   34   35   34     36
MEAN   36   37   37   36   37   37   36   37   36   36   38   39   37   37   36   37   37   36   37   36   36   36   36   36

               TOTAL NUMBER OF OBSERVATIONS =  4724     MEAN  =      37.

         : INDICATES CALIBRATION DURING THE HOUR
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RADIAN CORPORATION

DIURNAL VARIATION OF OZONE(UG/M**3)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	73	76	72	74	75	75	74	74	77	82	85	87	87	87	89	89	88	88	87	88	87	79	76	78	81
2	79	81	80	71	74	73	72	74	74	75	79:	74:	76	78	80	80	80	80	69	65	63	62	61	61	73
3	65	59	59	59	59	56	56	56	62	68	71	72	73	74	75:	80	81	79	73	67	69	70	71	69	67
4	71	73	68	69	70	65	67	68	67	66	71:	68	69	73	72	72	73	71	71	69	67	66	66	68	69
5	67	68	68	69	71	69	73	73	74	79	79	81	83	84:	83	83	84	82	78	76	79	78	81	82	77
6	81	82	81	81	81	81	81	80	80	84	87	88	86	84	82:	83	82	81	79	76	74	77	78	78	81
7	80	78	76	78	76	77	76	74	77	81	82	82	83	85	84	82	81	80	78	77	75	75	74	74	79
8	75	75	73	73	71	71	71	72	73:	74	76	76	79	80	81	78	74	72	68	68	68	67	67	70	73
9	69	67	70	68	72	71	70	70	69	69	70:	70	70	73	77	78	75	72	70	68	68	70	71	71	71
10	66	65	61	63	65	70	71	72	73	71	71:	75	78	78	79	79	79	79	77	79	74	75	76	78	73
11	76	74	73	74	75	73	73	71	72	74	77	:	76	77	76	76	77	75	75	74	73	72	69	67	74
12	66	67	67	66	67	68	69	68	69	75	82	87	87	86	85	83	87	87	84	86	84	83	82	81	78
13	86	86	85	85	83	82	82						93:	96:	98	99	103	101	96	95	92	86	89	86	91
14	72	73	73	71	68	65	65	62	68:	74:	80	82	84	86	87	85	90	88	84	80	74	75	75	76	77
15	71	71	73	74	73	74	76	70	75	78	88:	93	93	93	95	97	99	97	94	88	87	84	83	90	84
16	88	88	86	86	87	88	87	85	91	94	97	97	96:	95:	98	99	99	97	89	85	79	81	84	83	90
17	89	89	89	86	82	79	77	77	78	82	84	87	87	93	95	93	88	86	84	89	84	85	74	84	85
18	87	81	76	79	74	89	90	87	92	90	89	86	87	87		78:	81	82	83	82	78	77	72	74	83
19	75	75	77	76	75	70	75	78	80	80	80	79	79	80	80	78	77	76	74	73	73	75	77	76	77
20	70	73	71	70	71	71	75	65	88:	89	89	92	91	89	86	89	88	87	84	78	75	82	83	83	82
21	82	78	79	76	77	72	75	75	82	:	89	90	91	86	82	82	89	89	85	85	85	85	83	83	83
22	81	82	81	81	79	82	79	81	85	86	85:	77	80	80	82	84	86	84	78	76	80	77	78	81	81
23	82	78	77	79	76	78	79	78	81	82	:	76	80	83	87	90	93	95	88	83	82	82	84	82	82
24	82	82	80	81	76	75	75	79				103	100	97	95	105	104	102	98	99	100	100	100	96	92
25	99	102	104	101	99	98	95	91	93	:	91	90	91	89	90	89	89	87	86	89	85	82	76	79	91
26	85	83	79	77	76	76	74	65	71	68	77	85	82	84	84	80:	82	78	74	52	57	58	59	60	73
27	54	61	63	56	65	70	66	60	72	76	79	81	85	82	84	83	87	89	89	48					73
28											:			:	1	80	70	70	70	65	59	60	52	54	58
29	56	56	55	56	58	57	51	59	61	65	66	70	73	72	75	76	77		76	74	71	67	65	66	65
30	65	65	66	68:	65	66	65	62	65	70	71	74	:	:	:	:	94	94	89	77	75	74	76	67	72
31	64	67	72	80	85	86	82	80	86	101:	99:	101	102	102	101	101	100	97	94	90	86	86	86	88	88
MEAN	76	75	74	74	74	74	74	75	76	78	81	83	84	84	82	85	86	85	81	77	77	76	76	76	

TOTAL NUMBER OF OBSERVATIONS = 6412 MEAN = 79.

: INDICATES CALIBRATION DURING THE HOUR

HOURLY TOTAL PRECIPITATION(HUNDREDTHS OF INCHES)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	5
2	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0						0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	1	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	7
18	0	0	0	0	0	0	1	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	2
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	5
26	1	0	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	2	1	0	0	0	0	0	0	0	0	0	0	0	:	0	0	0	0	0	0	0	0	0	3
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	8	8	5	5	0	0	1	3	2	0	0	5	0	0	0	0	0	0	0	0	1	0	6	1	

TOTAL NUMBER OF OBSERVATIONS = 8739 TOTAL = 45.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF WIND SPEED AT 8 FEET(MPH)
TRAILER NO. = 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	2	3	2	3	4	3	3	5	6	12	20	20	15	15	13	11	11	9	5	5	4	2	3	5	7
2	3	5	1	0	1	2	2	2	1	4	5	5	5	7	7	4	6	6	6	4	3	2	2	2	4
3	1	2	1	1	0	0	1	0	1	2	4	6	5	5	4	2	1	1	1	1	1	1	0	0	2
4	0	0	1	0	0	0	0	0	0	1	6	7	7	8	8	7	6	6	2	2	3	3	2	1	3
5	1	0	0	1	1	1	0	0	1	0	3	4	3	2	1	1	3	1	1	4	1	1	0	0	1
6	1	0	0	2	2	2	2	2	1	3	5	5	5	5	5	4	5	5	6	3	1	2	2	2	3
7	5	4	2	2	2	2	2	2	1	2	8	13	12	11	13	12	7	7	2	6	7	3	3	3	6
8	3	5	2	3	2	2	3	7	15	15	17	13	12	10	6	8	5	2	1	2	2	2	1	2	6
9	0	1	2	2	11	14	16	16	15	10	16	17	13	14	15	14	14	8	7	5	2	4	4	8	10
10	3	6	9	5	7	10	12	9	12	11	10	14	15	18	19	17	13	13	10	10	11	13	11	12	11
11	9	8	10	10	10	8	7	5	8	11	12	13	13	12	11	11	11	9	6	3	1	0	1	1	8
12	1	0	0	0	1	1	0	0	0	2	2	3	7	6	5	8	8	6	3	1	2	5	4	4	3
13	7	6	10	10	17	12	15						19	20	18	16	16	11	6	3	2	5	0	1	11
14	2	3	2	2	1	3	1	0	2	3	3	7	5	4	6	5	4	3	1	2	3	0	1	0	3
15	1	2	1	1	0	0	0	0	0	1	6	12	7	8	9	9	10	6	3	2	2	1	1	4	4
16	3	4	2	3	2	4	5	4	10	14	15	15	13	13	13	13	12	8	2	2	2	2	2	2	7
17	7	8	10	8	6	2	1	0	0	0	1	7	6	10	8	7	3	3	1	1	4	1	1	3	4
18	3	0	1	2	1	3	2	1	3	6	9	9	7	7		5	7	8	6	7	4	1	1	1	4
19	1	2	3	1	3	2	1	4	7	12	12	11	12	12	14	13	13	13	9	6	8	7	11	10	8
20	10	9	6	6	11	8	5	5	4	3	5	3	2	2	5	4	3	4	2	2	5	4	2	4	5
21	1	2	2	1	3	1	1	1	1	3	2	3	4	6	6	6	5	5	4	4	1	1	2	1	3
22	1	2	2	1	1	1	2	1	2	1	0	2	2	2	3	3	4	3	3	3	4	1	1	0	2
23	0	[illegible]	2	4	3	3	3	3	5	7	12	11	10	10	13	12	10	8	4	3	4	3	4	6	6
24	6	9	5	6	5	8	6	5				14	15	16	15	16	12	9	7	7	7	10	12	15	10
25	16	13	18	14	16	16	13	10	13	16	14.	15	14	11	13	13	8	5	8	3	1	1	1	1	11
26	2	2	3	0	1	0	1	1	0	2	4	5	2	0	1	3	3	2	0	2	1	1	1	1	2
27	1	2	1	1	1	1	0	0	1	2	2	2	3	5	6	8	7	8	7	8	9	8	7		4
28	9	12	2	13	6	5	1	4	11	8	11	8	8	10	12	9	10	2	7	3	1	2	1	1	6
29	1	2	2	1	2	2	1	2	5	8	8	10	8	12:	10	9	10		10	7	2	1	1	3	5
30	2	1	1	0	0	1	0	1	2	3	2	3	4	6	7	6	7	6	3	2	3	2	1	2	3
31	2	1	2	1	0	2	1	0	3	11	12	14	12	12	13	14	13	13	7	4	3	1	2	2	6
MEAN	3	4	3	3	4	4	3	3	4	6	8	9	9	9	9	9	8	6	5	4	3	3	3	3	

TOTAL NUMBER OF OBSERVATIONS = 6753   MEAN = 6.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF WIND SPEED AT 30 FEET(MPH)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	6	5	6	5	7	6	7	8	9	16	25	25	19	17	16	14	14	13	8	7	6	4	5	8	11
2	5	7	3	2	3	4	5	3	2	5	6	7	7	10	9	7	8	8	8	7	5	4	4	3	5
3	3	3	3	3	1	1	2	1	2	3	5	7	6	6	5	3	2	3	2	2	2	2	1	1	3
4	1	0	2	1	0	0	0	0	0	2	7	9	10	11	11	10	10	9	5	3	4	4	4	3	4
5	1	1	0	1	1	2	0	2	2	1	5	6	5	4	2	3	5	2	3	6	3	2	1	1	2
6	3	1	1	4	4	4	3	3	2	5	8	7	7	7	7	6	7	8	10	5	2	3	4	4	5
7	5	8	5	5	3	4	5	4	3	4	11	17	16	14	17	16	10	11	3	9	11	6	5	6	8
8	5	8	5	5	6	5	6	10	19	20	21	18	16	13	9	11	8	5	3	4	4	3	2	4	9
9	1	2	4	3	16	19	21	21	20	14	20	22	18	19	20	19	18	11	11	9	4	6	6	11	13
10	5	9	12	8	10	14	17	13	17	16	14	18	20	24	25	22	17	18	14	13	15	17	15	16	15
11	13	12	14	14	14	11	11	8	12	15	15	17	18	16	14	15	15	13	10	7	4	1	2	1	11
12	2	6	1	0	3	3	1	1	0	3	5	4	9	8	6	10	11	8	5	5	4	9	7	8	5
13	11	9	14	23	22	16	19						24	25	24	21	20	15	9	5	4	9	2	3	15
14	3	4	4	3	2	5	2	1	3	4	5	9	7	5	9	7	6	5	3	4	5	1	1	1	4
15	3	3	4	1	0	1	0	1	1	1	9	15	10	10	11	12	13	8	5	3	4	3	1	8	5
16	6	7	3	5	4	6	9	7	13	18	19	19	17	17	17	16	17	11	5	5	3	5	5	4	10
17	11	11	13	11	11	4	2	6	0	1	2	10	9	12	11	10	5	4	2	2	6	2	2	5	6
18	5	1	3	4	2	6	3	2	5	11	12	12	9	9		7	10	10	10	11	6	2	3	3	6
19	2	4	5	4	6	5	3	6	9	15	15	14	15	16	16	16	17	17	12	10	10	10	15	13	11
20	14	12	8	9	14	11	8	7	6	5	6	4	3	3	6	5	5	6	4	4	8	6	4	7	7
21	3	4	3	1	5	2	2	1	2	4	3	4	6	8	8	8	6	7	7	7	3	2	3	2	4
22	3	3	3	1	1	2	3	2	3	1	1	3	3	4	3	4	5	5	7	7	7	2	1	1	3
23	1	1	5	8	6	6	7	4	7	10	15	14	12	12	16	15	13	11	7	7	7	7	7	10	9
24	11	13	8	8	9	12	10	8				18	20	20	19	20	16	13	10	10	10	13	15	19	13
25	23	22	22	14	21	21	17	13	17	21	18	20	18	14	16	16	11	7	11	5	3	2	2	3	14
26	5	4	5	2	3	2	1	3	1	3	6	7	3	1	2	5	4	4	0	3	2	1	1	1	3
27	1	3	3	2	2	1	0	1	2	3	2	3	4	6	8	11	9	10	10	11	13	11	10		6
28	12	16	4	13	10	8	3	11	14	11	14	11	11	12	15	12	13	3	10	5	3	4	3	2	9
29	3	3	3	2	4	3	3	4	6	10	9	13	11	16:	14	12	12		14	9	4	2	3	5	7
30	4	2	2	1	0	1	0	1	3	4	3	4	5	6	9	9	9	8	5	4	6	3	2	3	4
31	6	2	3	2	1	5	2	1	5	14	16	18	16	16	17	16	18	16	9	7	6	3	3	4	9
MEAN	6	6	5	6	6	6	6	5	6	8	10	12	11	12	12	12	11	9	7	6	6	5	5	5	

TOTAL NUMBER OF OBSERVATIONS = 8753 MEAN = 8.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND SPEED AT 100 FEET(MPH)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	7	6	6	8	11	9	10	12	10	18	26	29	22	19	18	16	16	16	11	9	7	4	5	10	13
2	1	4	6	5	1	5	6	4	3	6	8	9	9	12	11	8	10	10	10	8	6	5	5	4	7
3	4	4	6	4	2	2	4	2	2	4	6	9	7	7	6	4	2	3	4	2	2	1	1	1	4
4	2	0	2	2	0	0	0	0	0	2	9	10	12	13	12	12	11	11	8	5	6	4	3	4	5
5	2	0	1	2	2	2	1	4	4	1	6	6	5	5	2	3	6	3	3	7	6	2	1	1	3
6	3	1	1	2	3	4	2	4	2	6	8	7	8	8	8	7	3	10	13	7	3	4	7	7	6
7	12	11	6	8	6	4	5	4	3	4	13	19	19	16	20	19	11	13	5	13	14	8	6	6	10
8	7	12	7	6	7	7	10	13	23	23	25	20	19	15	10	13	10	7	3	6	6	3	2	5	11
9	5	5	6	6	21	24	26	20	23	16	23	26	20	22	25	23	22	14	15	12	5	9	9	14	16
10	7	12	14	9	12	17	21	16	19	19	16	21	24	28	30	27	21	21	17	16	18	20	18	19	19
11	16	15	17	17	17	14	15	10	14	17	18	20	20	18	17	17	17	15	13	9	7	2	1	1	14
12	1	0	0	0	1	2	2	3	1	3	3	5	10	9	7	11	13	9	7	4	7	13	11	12	6
13	16	13	17	27	27	20	23						28	29	28	24	24	18	12	9	6	13	4	6	18
14	4	5	5	4	2	5	3	0	4	4	5	10	8	6	10	8	7	6	5	5	8	2	1	2	5
15	4	5	2	1	0	1	0	0	1	2	10	17	11	12	13	14	15	10	6	3	4	1	2	12	6
16	11	10	5	8	6	7	10	9	15	20	21	21	19	19	20	19	20	13	8	9	5	4	7	7	12
17	14	15	10	14	13	5	3	0	0	1	3	12	9	14	13	12	6	5	2	3	8	2	3	7	8
18	7	1	3	5	3	7	4	3	6	13	14	14	10	10		8	11	12	13	13	8	1	3	2	7
19	2	9	10	9	12	10	9	9	11	18	16	16	17	19	21	19	20	20	16	13	15	13	19	16	14
20	12	16	11	12	17	13	10	8	7	6	7	4	3	4	7	6	5	7	6	4	9	8	6	10	9
21	5	6	4	2	6	3	1	1	2	5	3	4	6	9	9	10	7	8	10	10	4	3	2	3	5
22	2	4	1	1	3	2	3	2	3	2	2	3	3	4	4	5	6	6	8	9	10	6	2	3	4
23	1	3	9	11	11	9	9	6	6	11	18	16	14	14	19	17	15	13	10	11	12	11	12	14	11
24	13	17	10	12	14	16	14	10				21	22	23	22	23	18	15	13	13	13	16	18	23	16
25	20	26	21	22	24	24	20	16	21	25	21	23	22	16	18	18	13	9	13	6	3	4	2	4	17
26	5	5	6	3	3	2	1	4	1	3	7	9	4	1	3	6	4	4	0	1	1	0	0	1	3
27	1	3	2	1	1	0	0	0	2	3	3	3	5	7	9	12	11	12	13	15	17	15	13		6
28	15	19	6	16	11	9	5	13	16	13	16	12	12	14	17	14	15	4	12	6	4	5	3	2	11
29	5	4	4	2	5	4	3	0	7	11	10	14	12	18:	15	14	14		17	13	6	3	5	10	8
30	7	4	3	3	1	1	1	1	3	4	3	4	5	8	10	10	10	9	6	6	7	4	2	2	5
31	4	1	2	1	2	7	3	1	6	17	18	21	18	18	19	21	20	19	12	11	8	4	5	4	10
MEAN	7	8	7	7	6	8	7	6	7	10	12	13	13	14	14	13	13	11	9	8	8	6	6	7	

TOTAL NUMBER OF OBSERVATIONS = 6753 MEAN = 10.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND SPEED AT 200 FEET(MPH)
TRAILER NO. = 23 PERIOD(3/ 1/77 TO 3/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	8	7	7	9	12	11	12	13	11	19	31	31	24	20	20	18	18	19	13	11	8	5	6	11	14
2	7	10	5	5	5	6	7	6	4	6	7	9	9	13	12	9	11	11	12	10	7	7	6	5	8
3	0	6	5	5	3	3	4	2	3	4	6	9	8	8	6	4	2	4	4	2	2	0	1	2	4
4	1	1	3	0	1	0	1	0	0	3	9	10	12	14	13	13	12	12	9	6	8	3	2	3	6
5	3	0	0	3	3	1	1	5	4	1	0	6	5	5	3	3	7	3	3	5	5	3	3	4	3
6	3	0	1	2	2	3	2	1	2	7	9	8	8	8	8	7	8	11	17	10	8	6	11	11	6
7	16	13	6	9	6	3	5	5	5	5	16	20	21	18	21	20	12	16	10	18	18	13	6	5	12
8	9	17	9	5	7	7	15	16	27	20	28	22	20	10	11	15	12	8	2	5	4	5	6	6	12
9	3	11	5	5	26	29	32	31	27	18	25	29	22	24	28	26	25	16	18	14	6	11	11	16	19
10	8	13	16	10	14	19	22	17	21	21	18	23	20	30	32	29	23	25	19	18	20	22	19	21	20
11	17	10	19	19	19	15	17	13	15	17	18	21	21	19	18	18	19	16	14	11	10	4	0	0	15
12	0	1	0	0	1	1	1	2	1	3	4	5	11	9	7	12	14	10	8	6	10	14	12	13	6
13	16	13	19	31	32	24	28						31	32	31	26	27	21	16	12	8	15	6	8	21
14	7	5	5	5	3	3	4	1	4	4	6	10	9	6	11	9	8	7	6	6	10	4	1	2	6
15	4	3	1	1	0	1	0	0	1	2	11	18	11	13	14	15	17	11	8	2	5	3	4	13	7
16	15	13	7	5	5	9	11	12	17	22	24	24	21	21	22	20	22	15	11	10	6	4	8	11	14
17	10	18	19	16	15	6	3	0	0	2	3	14	11	10	15	13	7	6	3	4	10	3	3	9	9
18	6	1	3	4	4	9	5	5	7	15	15	15	11	11		9	12	14	14	15	8	1	4	2	8
19	1	11	12	11	10	14	14	12	13	20	18	17	19	20	23	21	22	23	19	16	20	17	22	19	16
20	21	18	14	14	15	14	10	9	7	7	8	5	3	4	8	7	6	7	7	3	11	9	8	12	10
21	5	5	0	2	6	4	2	1	2	5	3	5	7	9	10	10	8	9	12	15	8	6	5	5	6
22	4	4	3	4	9	4	4	3	3	2	2	3	3	5	4	5	0	6	8	8	11	9	4	4	5
23	3	8	10	10	12	10	8	5	9	12	19	18	15	15	21	19	17	14	12	12	14	13	14	17	13
24	16	11	12	15	17	18	16	12				23	25	25	24	26	20	17	15	15	15	18	20	25	19
25	29	29	29	25	27	27	24	19	20	29	24	25	24	18	20	19	14	10	15	6	3	5	2	4	19
26	6	5	8	3	6	3	1	5	1	4	7	5	4	1	3	6	5	4	0	0	1	0	0	1	3
27	2	3	4	2	2	1	0	0	2	4	4	3	5	6	9	13	12	13	17	20	22	20	16		6
28	17	20	7	18	13	11	7	15	18	14	17	13	13	16	18	15	16	4	12	7	3	5	4	0	12
29	2	4	4	2	4	3	3	4	7	12	11	15	13	19:	17	15	16		19	15	7	4	8	12	9
30	10	5	4	6	2	1	0	1	3	5	3	4	5	9	10	10	11	9	7	5	6	2	1	1	5
31	3	2	1	1	3	8	4	0	7	10	20	22	19	19	21	23	22	21	14	14	10	6	7	5	11
MEAN	9	9	8	8	9	9	8	7	8	10	13	15	14	15	15	15	14	12	11	10	9	8	7	8	

TOTAL NUMBER OF OBSERVATIONS = 6755 MEAN = 11.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND DIRECTION AT 8 FEET
TRAILER NO. = 23 PERIOD(3/ 1/77 TO 3/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	116	81	51	99	103	132	164	161	109	156	187	187	200	183	192	198	240	214	199	205	257	305	290	302	177
2	292	307	283	327	282	292	298	298	332	291	292	291	303	299	299	289	292	283	304	298	303	281	276	271	294
3	280	287	274	267	283	269	293	273	314	307	312	317	307	337	359	317	307	321	301	228	223	223	203	191	285
4	171	100	241	155	131	211	174	122	87	317	330	328	342	346	356	338	347	340	296	258	243	225	214	193	268
5	228	176	214	199	228	183	205	140	125	35	328	317	324	339	349	314	311	337	260	222	204	217	118	76	242
6	191	95	106	94	73	96	82	72	35	215	202	198	201	207	196	192	201	190	183	125	83	88	161	127	144
7	173	145	100	124	77	86	95	67	91	246	196	190	194	200	209	211	201	184	147	191	176	165	109	58	154
8	115	166	55	71	69	65	192	117	189	190	195	195	206	233	240	315	332	323	175	207	276	192	250	120	189
9	86	202	118	74	175	177	181	177	170	181	183	190	191	204	213	207	204	198	183	177	129	191	260	306	183
10	315	322	350	342	344	345	343	348	354	338	323	316	330	335	336	337	336	341	337	330	339	344	341	346	336
11	353	348	347	327	355	353	319	314	334	345	336	352	359	360	354	360	8	14	21	37	56	179	210	211	347
12	165	207	166	199	201	201	95	69	50	62	85	168	154	164	214	175	166	179	151	90	113	128	114	95	146
13	141	110	126	172	174	172	183						197	195	207	210	204	206	198	198	211	317	248	306	193
14	241	229	227	232	204	223	167	26	308	310	324	310	324	307	260	269	241	239	90	194	239	224	182	171	247
15	107	127	211	70	215	185	216	81	16	11	196	193	189	181	188	205	195	176	180	162	208	163	64	173	171
16	131	133	106	142	111	129	156	147	164	162	197	190	194	197	199	207	213	229	231	211	203	165	178	220	178
17	215	234	251	266	271	274	283	95	11	291	259	246	247	209	214	243	79								252
18	154	155	154	155	155	154	156	155	155	161	280	279	258	276		272	266	286	284	302	29	191	210	208	207
19	191	206	213	197	211	199	155	190	199	206	192	198	200	203	216	204	207	197	177	181	200	228	215	224	200
20	215	225	240	277	270	299	28	40	23	22	4	14	52	322	338	267	8	74	117	192	300	321	329	332	332
21	44	179	205	185	217	338	145	62	56	340	12	127	255	229	206	200	229	220	198	192	57	63	65	83	166
22	74	98	73	74	8	61	88	95	82	159	172	56	22	33	12	209	194	162	165	196	172	176	229	166	118
23	44	61	126	165	190	171	161	121	133	166	186	194	203	199	212	218	221	204	192	205	205	201	189	177	178
24	165	169	143	134	173	174	165	165				192	195	211	205	193	187	193	191	181	154	173	175	176	180
25	174	167	191	192	185	186	188	202	199	199	195	196	210	190	195	178	175	177	182	276	115	81	299	320	192
26	352	306	291	272	262	195	157	99	60	342	325	312	288	66	31	336	323	303	126	214	174	213	219	269	290
27	182	232	231	179	227	165	264	21	101	82	112	141	250	210	196	188	197	192	201	192	188	183	233		192
28	279	236	352	290	262	265	226	255	257	270	266	271	272	260	260	262	321	285	271	354	155	200	159	185	264
29	180	219	233	156	217	177	111	200	298	208	273	252	271	227	259	230	223		215	213	235	190	186	207	220
30	210	206	193	252	40	214	206	62	2	24	5	360	95	150	171	158	175	183	188	212	195	140	150	225	176
31	224	125	137	105	126	178	179	87	210	224	226	226	217	228	220	232	221	232	227	223	274	267	257	234	210
MEAN	176	182	187	177	201	191	172	166	64	279	253	237	240	230	234	235	235	227	199	208	198	197	206	205	

TOTAL NUMBER OF OBSERVATIONS = 8669 MEAN = 208.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND DIRECTION AT 30 FEET
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	120	91	66	105	103	133	154	157	109	156	190	189	200	186	192	201	241	216	202	209	235	303	290	302	177
2	291	307	262	326	280	291	299	294	326	289	290	289	302	297	299	280	292	282	303	300	303	281	277	272	293
3	279	285	276	269	279	269	290	275	308	304	311	314	307	338	359	315	301								297
4											332	329	344	346	357	341	349	340	310	280	263	232	213	170	311
5	209	199	291	165	197	158	198	145	125	24	326	316	324	338	341	306	310	331	255	205	187	252	107	67	246
6	201	11	119	110	95	112	105	84	42	200	202	197	202	208	196	193	202	192	183	138	104	100	163	156	153
7	179	154	116	146	103	96	103	80	126	257	196	192	196	202	209	212	203	186	171	193	182	169	115	61	162
8	123	186	93	73	66	83	178	148	191	193	196	198	209	234	240	316	333	328	156	185	174	177	112	138	168
9	157	221	129	66	161	179	183	178	171	183	189	193	195	207	214	211	206	200	186	181	144	187	261	306	188
10	310	324	359	341	345	346	343	349	355	339	323	316	330	336	336	337	336	341	337	329	338	346	343	348	337
11	353	346	347	327	335	334	319	314	334	346	338	353	357	359	354	360	8	13	19	31	50	156	204	183	349.
12	177	196	216	167	169	192	131	92	81	66	82	174	156	185	214	177	168	183	152	102	125	126	110	94	149
13	147	113	127	174	176	173	185						197	195	209	212	205	209	204	209	230	317	262	308	198,
14	255	227	233	236	217	213	188	21	307	308	323	311	323	307	283	272	243	239	100	181	246	253	169	158	251
15	110	139	269	45	221	192	258	166	21	10	208	196	192	184	190	208	199	179	183	160	205	210	80	170	182,
16	153	139	128	143	117	136	152	156	185	185	198	193	196	199	202	207	216	231	232	204	186	160	176	218	180
17	213	255	251	265	286	271	274	103	8	286	259	247	248	212	216	234									251,
18	222	154	132	132	132	201	285	202	265	274	279	279	259	277		273	270	286	287	304	28	182	212	200	247
19	178	197	266	196	200	197	186	192	203	209	195	201	213	207	218	207	211	201	181	185	202	228	218	225	201
20	219	228	238	277	268	296	28	42	25	23	5	10	52	325	338	269	7	74	115	191	301	322	327	333	332
21	40	163	162	168	215	3	145	73	28	339	6	149	257	236	210	201	227	221	195	192	93	96	88	105	161.
22	17	104	65	93	252	119	112	109	91	183	201	48	310	45	22	206	194	162	161	176	171	174	217	190	139.
23	141	147	163	162	172	164	161	126	133	170	170	199	204	202	216	222	224	210	196	197	196	188	187	177	161
24	169	169	155	199	190	177	166	164				195	201	215	209	194	191	198	196	184	155	173	176	177	182
25	179	190	192	195	188	189	190	202	200	202	198	200	213	192	196	178	177	179	185	263	119	86	291	317	194
26	351	298	291	274	264	212	136	93	253	332	321	313	287	63	30	334	321	299	152	191	149	189	196	251	275
27	138	239	233	152	219	183	10	354	106	81	115	153	233	211	199	191	200	194	206	194	192	187	230		190
28	271	290	316	289	265	260	235	255	256	270	265	272	273	261	260	266	324	284	274	353	150	191	146	174	264
29	197	204	215	148	210	180	115	203	297	270	273	253	275	228	240	251	226		219	217	230	213	189	201	220
30	205	206	195	216	18	192	186	73	300	8	1	357	166	144	165	152	167	174	181	185	178	119	131	224	164
31	228	41	116	59	88	157	183	62	207	219	220	223	212	223	216	226	216	224	223	225	271	275	260	242	211
MEAN	187	193	187	171	202	167	178	123	26	269	260	259	241	252	235	235	238	225	198	201	187	195	193	200	

TOTAL NUMBER OF OBSERVATIONS = 8451 MEAN = 210.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF WIND DIRECTION AT 100 FEET
TRAILER NO. = 23 PERIOD(3/ 1/77 TO 3/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	131	115	105	116	106	135	144	149	115	162	194	194	203	189	196	206	245	220	209	216	240	309	298	308	180
2	301	313	300	339	293	301	309	305	335	296	295	295	308	305	306	295	298	288	312	310	315	294	291	288	303
3	295	298	292	285	303	296	311	310	325	314	321	322	316	345	5	329	315	332	341	295	273	244	267	265	306
4	222	181	265	255	247	244	235	243	257	314	339	336	349	351	1	346	355	347	333	316	295	270	244	159	290
5	166	354	347	112	157	160	25	139	124	41	333	325	333	346	349	328	319	341	274	218	194	246	157	166	325
6	230	320	87	121	116	157	131	116	112	180	203	201	204	211	197	198	205	194	183	165	182	140	182	181	173
7	167	167	155	165	105	130	132	132	134	257	200	195	200	205	212	214	206	193	213	203	190	183	127	76	177
8	155	144	156	84	88	82	169	157	192	196	199	202	212	237	240	320	335	336	120	160	165	149	133	155	170
9	207	193	140	127	164	183	186	181	174	186	192	196	200	212	217	215	211	205	191	164	173	205	267	311	194
10	312	327	350	347	352	351	349	353	359	345	330	324	336	341	342	343	342	346	346	336	344	351	348	354	342
11	359	354	354	334	341	342	350	322	341	352	344	359	2	4	360	5	14	19	24	31	40	31	240	152	357
12	169	142	272	323	197	163	182	120	88	76	88	180	157	191	216	182	171	188	151	125	140	128	113	100	152
13	155	120	155	177	178	174	188						202	201	213	216	210	215	211	220	254	323	289	320	204
14	291	264	264	275	253	234	217	27	315	316	332	318	329	314	291	279	252	248	99	178	261	293	140	132	276
15	114	133	250	100	111	240	321	166	20	30	158	199	196	166	192	212	201	181	185	163	208	209	154	170	175
16	151	141	137	136	117	159	154	166	109	190	204	199	262	203	207	212	220	237	243	216	317	136	177	204	186
17	217	242	258	268	290	277	280	101	19	301	253	253	255	216	225	249	99	333						305	264
18	257	261	261	201	260	264	276	277	274	277	232	285	266	282		279	277	293	295	311	32	18	249	211	276
19	179	201	203	202	205	204	200	200	209	214	200	205	208	212	222	211	216	205	186	193	205	231	224	231	206
20	224	234	245	282	272	302	35	49	34	33	14	11	0	330	340	276	12	80	115	185	319	332	332	341	339
21	29	140	150	124	228	175	194	105	11	340	337	108	264	236	222	200	233	226	198	197	171	151	158	170	188
22	149	128	156	167	195	172	146	151	96	202	259	58	16	38	31	223	199	164	157	163	160	172	183	193	158
23	190	160	161	146	155	157	150	132	139	173	192	201	206	207	218	225	227	212	196	194	185	189	188	181	182
24	177	170	170	173	168	176	168	165				196	203	218	211	201	197	204	204	191	162	179	182	183	187
25	135	196	197	201	193	195	197	209	208	208	205	204	217	197	206	182	183	186	191	302	123	91	299	328	199
26	6	311	330	287	275	221	129	93	44	342	323	322	296	57	33	343	330	313	19	176	258	319	323	255	323
27	166	262	293	230	266	189	42	12	107	85	112	141	230	218	206	196	205	199	213	200	196	193	229		199
28	278	293	347	296	292	274	255	201	262	274	271	276	279	267	268	275	330	287	277	335	126	184	289	136	277
29	226	215	229	153	288	184	138	205	295	275	275	257	277	252	243	233	228		219	218	237	220	198	201	224
30	212	214	231	201	121	173	166	76	4	360	22	3	94	155	163	152	165	171	173	165	142	102	115	211	152
31	209	300	95	1	205	172	201	11	204	217	219	222	211	225	215	226	214	223	223	229	279	295	278	269	232
MEAN	205	216	210	200	206	199	169	142	59	279	262	243	248	237	236	241	240	237	208	207	210	215	220	209	

TOTAL NUMBER OF OBSERVATIONS = 8692 MEAN = 222.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND DIRECTION AT 200 FEET
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	145	145	131	131	116	144	143	146	122	167	198	198	207	193	195	210	247	224	216	222	248	314	305	310	187
2	306	316	313	345	300	305	312	304	330	293	294	294	306	302	304	295	298	287	313	318	321	302	299	296	305
3	302	303	296	292	315	308	323	329	330	316	323	323	319	345	3	331	314	333	350	328	313	289	310	284	317
4	256	253	296	279	267	306	321	331	278	318	339	337	350	352	360	349	355	350	343	335	316	295	284	160	315
5	119	62	13	105	132	185	87	129	114	35	336	328	337	349	352	332	319	332	277	226	195	218	196	194	16
6	215	212	155	197	193	183	191	153	172	203	205	206	208	213	204	203	208	196	186	188	204	188	196	195	194
7	195	180	154	186	198	186	175	184	176	256	204	201	204	209	215	216	210	201	220	206	202	197	169	101	194
8	178	202	186	99	97	92	202	165	197	201	203	206	216	242	249	323	336	334	99	140	145	166	176	176	182
9	204	194	160	169	187	187	190	186	178	190	197	201	205	215	220	217	214	209	198	186	209	218	267	315	201
10	315	335	358	348	352	352	349	353	358	345	329	323	335	341	342	343	343	347	345	338	346	353	350	356	343
11	360	357	357	335	342	345	336	327	344	353	354	360	1	2	359	3	12	17	22	25	24	8	6	136	0
12	22	151	263	94	171	153	182	135	120	87	92	104	165	197	220	188	177	195	164	151	157	138	125	113	153
13	167	129	146	184	185	182	194						207	206	218	219	214	218	216	223	259	319	296	326	210
14	305	285	280	297	287	244	249	258	311	315	332	317	327	312	289	280	252	253	93	184	265	297	129	122	282
15	111	121	223	215	129	186	29	340	300	46	188	203	201	169	195	214	203	184	190	179	202	158	208	176	182
16	169	147	145	144	140	183	167	175	191	193	207	201	204	207	210	214	222	238	240	227	300	101	177	205	190
17	223	246	262	272	295	283	281	98	12	294	260	260	200	220	220	253	104	333	193	273	255	296	163	242	258
18	251	180	150	158	293	277	292	288	275	285	266	289	268	263		279	277	293	294	310	27	357	279	250	278
19	209	221	223	223	219	216	216	211	215	219	205	211	213	217	225	217	221	210	197	203	210	231	230	236	216
20	229	239	269	291	278	309	32	46	31	34	12	10	8	337	341	281	5	74	109	183	321	333	327	339	339
21	13	117	117	94	243	213	183	195	254	341	2	100	266	244	221	211	236	227	200	203	202	195	194	207	208
22	197	191	203	196	199	192	179	194	129	211	240	63	11	43	23	224	190	167	156	153	149	169	189	196	179
23	205	169	157	136	146	152	153	143	153	177	190	205	209	212	222	228	231	216	206	206	188	201	197	190	187
24	192	175	166	261	198	181	175	170				200	266	221	213	203	200	207	208	196	170	183	185	186	192
25	169	200	201	200	197	198	201	211	211	212	208	208	219	201	203	185	187	193	197	292	131	69	303	329	203
26	7	316	301	293	278	227	142	96	63	339	326	325	298	39	23	341	327	314	278	197	280	200	115	320	317
27	249	304	311	261	266	218	50	328	113	84	124	164	233	221	207	200	204	202	217	206	204	201	229		220
28	284	295	334	297	293	277	263	261	261	275	272	277	278	269	208	272	333	289	284	359	119	199	312	57	285
29	266	236	248	212	224	219	223	230	299	279	279	202	212	230	247	239	234		225	223	238	235	223	222	241
30	221	237	250	214	201	209	162	95	360	1	321	4	103	169	173	161	170	179	181	174	151	109	80	135	169
31	250	290	51	230	208	192	207	5	233	225	229	230	220	232	226	236	223	233	232	238	296	308	293	288	243
MEAN	228	216	220	215	223	214	203	193	236	279	262	247	251	243	244	245	243	242	216	218	226	229	232	221	

TOTAL NUMBER OF OBSERVATIONS = 6752 MEAN = 232.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 8 FEET
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

	HOUR																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
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31																									
MEAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 30 FEET
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

	HOUR																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
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31																									
MEAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 100 FEET
TRAILER NO. - 25 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
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31																									
MEAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

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                  DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 200 FEET
                    TRAILER NO. = 23  PERIOD( 3/ 1/77 TO  3/31/77)

                                             HOUR
       1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24 MEAN
DAY

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MEAN   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
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DIURNAL VARIATION OF HORIZONTAL WIND DIRECTION STANDARD DEVIATION AT 30 FEET
                    TRAILER NO. = 23  PERIOD( 3/ 1/77 TO  3/31/77)

                                              HOUR
         1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24 MEAN
DAY

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 31
MEAN       0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
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RADIAN CORPORATION

DIURNAL VARIATION OF HORIZONTAL WIND DIRECTION STANDARD DEVIATION AT 100 FEET
TRAILER NO. = 23 PERIOD(3/ 1/77 TO 3/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
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MEAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

RADIAN CORPORATION

DIURNAL VARIATION OF HORIZONTAL WIND DIRECTION STANDARD DEVIATION AT 200 FEET
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
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MEAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

RADIAN CORPORATION

DIURNAL VARIATION OF RELATIVE HUMIDITY AT 8 FEET
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	66	65	66	65	62	61	62	62	58	51	46	47	47	46	47	45	52	57	61	65	75	97	99	100	63
2	100	100	100	100	100	100	100	100	100	99	95	92	90	89	88	87	87	91	98	100	100	100	100	100	96
3	100	100	100	100	100	100	100	100	99	98	95	92	90	82	76	76	74	79	82	89	93	95	96	96	92
4	98	98	98	99	99	99	99	99	99	97	94	93	96	90	82	79	79	81	81	85	90	94	96	96	92
5	96	97	96	96	95	97	96	94	94	89	83	81	78	74	70	66	65	67	71	83	84	84	82	81	84
6	83	82	85	85	84	85	83	81	76	68	65	61	60	60	60	59	59	62	65	68	70	67	65	64	70
7	65	64	66	65	66	66	65	65	57	50	48	49	48	47	46	45	44	46	49	52	53	53	55	54	55
8	51	49	49	49	49	49	48	48	45	42	42	42	41	39	40	41	43	44	44	49	52	53	54	51	46
9	50	49	46	48	46	45	44	44	44	43	41	41	41	40	40	40	41	42	45	47	47	48	48	56	45
10	67	74	91	96	91	89	94	97	97	96	96	98	97	96	96	97	98	98	98	99	99	98	96	95	94
11	97	98	98	99	99	95	97	95	90	87	83	78	72	70	68	66	66	67	70	73	73	76	81	84	83
12	86	87	89	89	90	90	89	86	73	68	61	56	54	54	52	52	51	51	54	55	57	58	58	59	68
13	56	52	51	51	51	52	50						42	42	42	42	41	41	42	43	43	57	62	63	48
14	66	74	77	80	81	86	87	80	81	76	74	71	74	76	92	90	85	76	78	83	89	93	95	97	82
15	68	67	86	87	86	83	82	82	76	66	62	55	55	53	51	47	45	46	48	53	54	56	59	56	66
16	55	53	54	53	52	51	50	50	45	42	41	41	41	39	39	38	37	39	42	46	51	52	49	49	46
17	46	46	47	50	62	73	85	98	99	96	93	95	94	89	94	90	98	99	98	93	96	99	100	96	85
18	97	99	99	98	99	98	99	99	95	79	71	70	74	66		66	59	54	55	60	82	89	89	82	82
19	81	81	81	80	83	83	81	74	67	65	64	62	59	56	53	52	49	49	51	54	53	51	51	52	64
20	52	53	56	58	75	73	86	86	83	86	80	75	70	63	65	65	67	69	73	76	76	72	71	70	71
21	75	81	81	83	83	83	84	79	72	63	59	58	55	56	55	55	54	54	58	62	63	64	67	67	67
22	65	67	69	69	69	68	68	66	59	53	51	50	48	47	46	43	43	44	47	51	50	51	52	50	55
23	51	53	55	54	54	53	52	51	47	43	42	41	42	42	40	40	40	40	41	46	49	50	47	48	47
24	48	47	49	46	51	51	52	51				48	46	46	46	45	45	45	47	48	50	49	49	48	48
25	46	47	48	50	51	64	92	96	99	94	89	80	82	87	76	76	75	77	79	85	98	100	100	100	78
26	100	100	100	100	100	100	100	100	99	98	97	97	94	91	87	85	80	79	80	91	93	94	94	92	94
27	93	92	91	92	93	90	89	90	84	74	69	64	58	56	54	56	55	55	56	58	56	57	58		71
28	98	100	99	86	74	68	69	78	84	81	74	72	70	66	63	60	69	77	70	74	81	81	80	81	77
29	82	83	83	81	81	82	84	78	72	67	65:		: 62	64	69	70	70		72	76	78	80	78	78	75
30	64	65	63	64	62	62	82	82	77	66	51	58	56	54	52	50	46	44	47	52	53	55	54	60	64
31	64	51	60	53	47	51	51	50	48	44	43	42	41	46	41	41	40	39	39	41	43	44	48	52	47
MEAN	75	75	76	76	76	76	78	79	77	72	66	66	64	63	61	60	60	60	63	66	69	72	72	73	

TOTAL NUMBER OF OBSERVATIONS = 743 MEAN = 70.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF RELATIVE HUMIDITY AT 30 FEET
(TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1																									
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29															62	65	65		67	71	73	74	72	71	69
30	72	73	71	70	70	72	70	71	67	64	51	58	54	51	50	43	42	41	43	46	50	53	54	57	58
31	59	60	60	53	48	49	50	51	50	46	45	44	43	43	44	44	43	41	42	43	44	45	50	52	48
MEAN	66	66	65	61	59	60	60	61	59	55	48	50	49	46	52	52	48	41	50	53	56	57	58	60	

TOTAL NUMBER OF OBSERVATIONS =   671   MEAN =   56.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF RELATIVE HUMIDITY AT 100 FEET
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	71	71	71	68	67	67	67	67	66	58	55	55	53	54	54	52	58	64	67	72	84	100	100	100	68
2	100	100	100	100	100	100	100	100	100	100	100	100	99	99	99	97	97	99	100	100	100	100	100	100	99
3	100	100	100	100	100	100	100	100	100	100	100	100	100	93	87	85	83	86	90	95	99	100	100	100	96
4	100	100	100	100	100	100	100	100	100	100	100	100	100	99	93	86	87	88	86	91	96	99	100	100	97
5	100	100	100	100	99	100	100	100	100	99	95	92	88	65	80	76	73	74	77	81	80	85	85	84	90
6	85	87	87	84	83	84	83	83	81	76	71	69	68	68	68	67	66	67	68	72	72	71	70	69	75
7	67	67	69	66	65	66	66	64	61	57	55	54	53	52	50	49	48	50	54	56	57	57	57	57	58
8	55	53	53	52	52	53	52	53	49	47	45	46	45	43	43	44	45	45	46	46	48	50	51	50	48
9	49	49	49	50	48	47	47	47	48	47	46	45	45	44	44	45	45	46	48	48	49	50	51	60	48
10	73	81	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	98
11	100	100	100	100	100	100	100	100	100	99	95	89	81	77	75	73	72	73	75	79	79	81	84	85	88
12	68	89	91	93	92	92	91	88	87	78	71	65	62	61	58	58	57	55	58	60	62	61	62	62	73
13	58	57	55	55	55	55	54						45	45	45	46	45	45	46	46	46	59	67	69	52
14	71	75	79	82	85	88	91	93	92	89	84	80	84	87	99	100	98	87	87	87	98	100	100	100	89
15	100	99	91	86	83	82	83	82	81	77	70	61	60	58	56	52	51	50	50	53	54	55	58	54	69
16	54	53	54	53	54	52	50	51	49	46	45	45	45	44	42	42	41	43	45	46	48	50	48	48	48
17	47	47	51	54	67	81	94	100	100	100	100	100	100	99	100	99	100	100	100	100	100	100	100	100	89
18	100	100	100	100	100	100	100	100	99	89	78	77	62	76		75	60	59	60	65	89	97	94	86	86
19	83	82	81	82	83	86	85	80	75	73	71	70	66	62	59	57	54	53	54	56	57	56	56	57	68
20	57	58	60	63	51	81	96	97	99	98	92	86	80	77	73	73	74	77	80	81	81	77	75	74	79
21	60	80	65	86	66	84	85	64	80	71	67	65	62	62	62	61	60	60	62	64	67	68	69	68	72
22	66	65	70	69	68	66	66	66	64	60	57	55	53	52	51	46	47	48	46	47	47	50	52	53	57
23	55	55	54	51	52	53	52	52	52	47	45	45	45	45	44	44	44	44	44	44	45	46	46	47	48
24	48	48	51	50	51	53	54	54				54	52	51	51	50	50	50	51	52	54	54	53	52	52
25	51	51	55	56	57	70	95	100	100	99	97	86	87	94	80	65	83	84	85	92	100	100	100	100	83
26	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	95	89	87	87	86	89	92	91	90	96
27	92	92	90	91	90	90	90	93	91	81	76	71	65	62	60	61	59	59	60	62	62	60	61		75
28	100	100	100	94	62	75	75	84	93	90	33	80	76	72	68	66	74	65	78	81	89	85	82	84	83
29	83	81	81	82	81	82	84	82	80	74	:	:	:	:	70	73	73		75	78	81	81	79	76	79
30	75	79	78	77	77	76	77	76	76	73	61	65	62	56	56	54	48	46	47	48	51	56	56	57	64
31	59	60	61	56	52	53	54	54	54	50	49	48	47	46	47	47	47	45	45	45	46	49	53	55	51
MEAN	76	77	78	77	78	79	80	82	82	78	75	72	70	69	67	66	66	66	67	69	72	74	74	74	

TOTAL NUMBER OF OBSERVATIONS = 6710   MEAN = 74.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF RELATIVE HUMIDITY AT 200 FEET
TRAILER NO. = 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	67	67	65	63	62	62	61	62	61	55	48	48	48	51	50	49	55	61	63	69	80	95	98	97	64
2	96	99	99	99	99	99	99	99	99	99	99	91	89	90	90	88	87	93	94	97	98	98	98	98	96
3	98	98	98	96	98	98	98	98	98	98	98	93	91	89	83	81	79	82	86	93	93	97	99	99	93
4	93	91	92	95	96	96	97	96	96	94	91	90	92	89	88	83	82	83	82	86	90	95	96	98	91
5	92	95	96	97	93	93	93	95	99	97	91	87	84	80	75	70	68	69	72	75	73	78	78	77	84
6	77	79	79	76	75	76	76	75	73	68	65	62	62	63	63	62	62	63	62	65	65	65	63	62	68
7	60	60	62	59	58	59	58	56	54	52	50	49	48	48	46	44	45	47	50	52	52	52	53	53	53
8	51	49	48	48	47	49	48	48	44	43	42	43	42	41	42	42	43	43	44	44	44	46	46	46	45
9	45	45	44	46	44	44	44	43	44	44	43	43	43	42	42	43	43	45	45	45	47	48	48	60	45
10	67	75	88	91	86	84	90	94	93	92	95	95	94	92	91	92	94	94	95	97	97	96	92	91	91
11	91	96	95	96	96	90	91	89	90	85	90	85	75	72	70	68	67	68	70	74	72	75	79	80	82
12	82	84	85	84	85	84	83	78	77	71	65	59	57	57	54	54	52	51	54	55	57	56	56	57	66
13	52	51	50	50	50	50	49						42	42	43	43	42	42	44	44	44	58	65	66	49
14	63	72	77	79	84	87	90	91	90	88	82	78	79	85	90	87	81	82	82	79	86	92	95	96	84
15	75	95	86	77	74	72	72	72	69	71	61	55	50	54	52	48	47	47	47	50	49	51	54	49	63
16	49	46	48	47	48	47	46	48	46	44	43	43	45	42	41	41	41	42	44	44	46	48	45	45	45
17	59	49	45	48	64	78	85	96	99	95	91	90	91	85	89	84	96	97	85	85	88	97	98	88	81
18	59	92	91	87	92	93	96	96	86	80	58	69	77	73		67	59	53	55	61	89	94	88	81	80
19	78	74	73	74	76	79	77	73	69	65	65	64	60	55	51	51	49	48	50	52	52	52	52	54	62
20	54	55	57	60	76	75	92	92	96	93	86	84	78	75	71	70	72	74	78	77	77	73	71	69	75
21	76	82	81	61	79	78	80	78	75	67	65	65	60	60	60	59	59	58	60	61	64	65	66	65	68
22	65	65	66	66	64	65	65	63	61	55	53	51	50	49	48	45	45	45	45	43	44	46	48	49	54
23	49	49	47	46	47	47	47	47	47	45	43	43	44	45	42	42	42	43	42	42	43	43	44	44	45
24	45	45	47	47	46	49	50	50				52	49	48	49	48	48	49	49	50	52	52	51	50	49
25	46	45	50	54	55	64	94	97	88	97	90	76	89	89	74	79	79	80	80	88	99	100	100	100	79
26	100	100	100	100	100	100	100	100	100	100	100	100	99	94	94	91	84	84	84	84	85	88	88	86	94
27	85	87	84	77	86	85	86	87	85	76	75	68	61	60	56	60	58	58	58	59	59	57	58		71
28	95	100	99	92	71	76	69	62	91	67	79	76	74	64	65	60	71	82	73	78	86	81	76	79	79
29	76	76	75	75	75	76	76	75	75	:	:	:	:	:	64	67	68		70	74	77	77	73	70	73
30	71	73	72	70	72	71	72	73	72	70	55	62	56	54	53	50	45	43	45	46	48	52	52	53	60
31	53	54	52	56	45	50	51	51	51	48	47	46	45	44	45	45	45	43	43	44	45	47	52	53	48
MEAN	71	72	73	72	72	73	75	77	77	74	70	68	66	64	63	62	61	62	63	65	68	70	70	70	

TOTAL NUMBER OF OBSERVATIONS = 6694 MEAN = 70.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF TEMPERATURE AT 8 FEET(DEG F)
TRAILER NO. - 25 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	23	24	24	26	27	26	25	26	32	37	39	40	40	39	41	39	35	32	31	30	28	24	24	23	319
2	23	22	20	19	20	19	18	18	19	20	22	23	24	24	25	25	25	23	21	20	20	19	19	19	213
3	19	19	19	18	18	18	18	18	19	20	22	24	24	25	26	26	25	23	22	18	16	15	16	16	209
4	16	16	14	15	15	15	15	15	17	19	21	22	22	23	24	24	23	22	18	16	12	9	8	10	176
5	9	8	8	8	8	8	8	12	15	18	21	22	24	24	26	26	26	24	20	15	15	14	16	16	167
6	14	15	15	12	12	13	14	15	21	28	30	33	33	34	36	37	36	35	31	28	27	28	28	28	255
7	29	27	25	25	24	25	25	26	34	39	40	42	42	43	45	44	44	42	38	36	36	35	34	34	355
8	35	37	34	34	32	32	34	35	40	44	46	47	48	49	48	45	43	42	39	34	32	31	30	32	380
9	32	32	30	31	35	36	37	38	39	42	44	44	45	46	46	45	45	44	41	39	36	39	38	37	400
10	33	32	27	26	25	25	21	20	20	20	20	21	23	22	22	22	22	22	22	21	22	21	22	21	230
11	21	20	20	19	19	19	16	17	20	22	23	25	27	27	28	26	26	26	23	21	19	17	13	13	219
12	11	12	11	11	10	9	10	12	18	25	24	31	32	34	36	36	35	34	31	29	28	28	28	28	244
13	31	31	33	33	33	31	34						44	46	46	46	46	43	40	37	35	29	28	27	366
14	23	21	20	19	17	16	16	18	21	24	27	27	27	27	24	25	26	27	23	19	18	18	16	17	220
15	15	13	12	13	11	12	12	14	20	24	30	33	34	35	36	38	37	37	33	29	28	26	25	28	255
16	27	26	26	26	26	28	29	32	40	42	44	45	46	47	48	49	47	44	39	34	33	33	34	34	377
17	35	37	36	34	31	28	26	25	25	27	28	28	29	30	29	30	28	27	27	27	26	25	24	24	297
18	22	22	20	20	20	21	20	20	22	24	27	26	26	28		27	28	28	25	23	21	18	15	15	230
19	13	13	14	14	13	14	14	20	25	27	28	30	32	33	34	34	35	34	30	29	31	32	33	34	265
20	33	33	33	31	26	28	23	22	22	23	25	26	27	29	30	30	30	28	26	24	24	25	23	22	275
21	20	17	15	15	14	15	15	19	24	28	29	32	33	36	36	38	39	38	33	30	30	28	27	27	276
22	25	26	25	24	24	25	24	29	35	39	40	43	44	45	47	47	47	46	41	36	36	34	33	34	356
23	34	32	32	34	32	32	33	37	43	48	51	52	53	54	54	54	53	51	46	39	37	36	39	40	424
24	38	39	39	38	35	36	35	39				47	49	49	49	50	48	46	44	44	43	44	45	45	433
25	43	43	42	40	35	36	32	32	30	32	34	36	35	36	39	38	36	35	33	32	29	28	28	28	353
26	29	26	25	25	24	23	23	24	25	29	31	32	34	34	37	37	40	39	37	31	31	29	28	28	300
27	27	25	25	24	23	24	24	27	32	35	37	40	44	46	47	46	47	46	42	40	38	38	37		355
28	29	23	22	21	19	18	14	16	12	19	21	21	22	23	23	:	23	21	21	19	17	14	15	13	207
29	11	10	9	10	8	8	7	15	19	22	22:	:	22	22	21	22	23		19	17	17	15	14	13	164
30	12	11	11	11	11	11	11	15	20	22	:	:	:	29	30	31	32	32	29	24	23	22	23	20	202
31	19	19	20	23	27	26	27	29	32	35	36	39	39	40	40	40	40	39	36	31	29	28	26	25	312
MEAN	24	24	23	23	22	22	21	23	26	29	31	33	34	35	36	36	35	34	31	28	27	26	25	25	

TOTAL NUMBER OF OBSERVATIONS = 8699 MEAN = 28.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF TEMPERATURE AT 30 FEET(DEG F)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	23	24	25	26	26	26	25	24	29	35	37	38	37	37	38	38	34	31	30	29	26	22	22	21	29
2	21	19	18	16	18	17	16	16	17	18	19	21	21	22	22	22	23	21	18	18	18	17	17	17	19
3	17	17	17	16	17	17	16	16	17	18	20	21	21	23	24	24	24	23	21	19	17	17	16	15	19
4	14	14	13	13	14	13	13	13	15	17	18	20	19	20	21	21	21	20	18	16	13	11	10	11	16
5	9	8	7	8	10	5	7	10	13	16	19	19	21	22	23	25	24	23	21	17	17	13	15	15	15
6	15	15	15	12	12	12	13	13	19	25	28	30	32	33	34	35	36	34	31	28	27	28	28	28	24
7	20	27	25	27	26	25	25	26	33	38	40	41	42	43	44	44	44	42	39	37	37	36	35	35	35
8	36	37	35	35	33	32	34	35	40	43	44	46	47	48	48	45	43	43	41	39	36	34	32	34	39
9	34	33	35	32	30	37	37	38	39	42	43	44	45	46	46	45	45	44	42	40	39	40	40	36	40
10	33	32	25	24	23	21	18	17	17	17	18	18	20	19	19	19	20	20	19	19	19	19	19	19	20
11	18	18	17	17	17	16	15	15	17	19	20	22	23	24	25	26	24	23	22	20	19	17	16	15	19
12	12	13	12	11	11	10	9	10	16	23	26	29	31	32	34	35	34	33	31	29	28	28	28	27	23
13	31	31	32	32	32	31	33						44	44	45	45	44	43	40	38	36	29	28	27	36
14	20	23	20	19	17	16	15	16	18	21	24	25	24	24	22	22	23	24	22	19	18	17	17	16	20
15	13	11	12	12	13	11	10	11	17	22	29	30	31	33	34	36	36	36	34	30	29	27	26	29	24
16	27	28	26	27	26	29	30	32	38	41	42	43	44	46	46	47	47	44	40	37	35	35	30	34	37
17	36	37	35	33	29	27	25	24	24	25	27	26	27	28	26	28	25	25	26	26	24	24	23	23	27
18	20	20	19	19	18	19	18	16	20	21	23	23	22	25		25	20	26	24	22	19	17	15	15	21
19	15	15	15	16	15	13	14	18	22	24	25	27	29	31	31	32	33	33	30	29	30	31	32	32	24
20	32	32	31	30	25	26	21	20	19	20	22	23	25	28	29	29	28	27	25	24	23	23	22	21	25
21	19	16	17	15	14	14	15	17	22	20	28	30	32	33	34	36	37	37	34	31	29	28	27	27	26
22	26	25	25	25	26	26	24	27	34	37	43	42	43	45	46	47	47	46	44	40	38	36	36	36	36
23	31	33	34	35	34	34	35	36	43	47	49	50	51	53	53	53	52	51	46	44	43	43	42	41	43
24	42	41	40	40	37	37	35	34				45	47	47	48	48	47	47	45	44	44	45	45	45	43
25	45	43	42	40	37	35	30	29	28	30	32	35	33	33	37	36	35	34	32	30	27	27	27	26	33
26	25	24	23	23	23	23	22	22	24	28	30	30	32	33	36	37	39	38	36	36	33	33	33	29	30
27	26	26	27	26	25	25	25	26	31	34	36	39	42	45	46	46	46	46	43	40	39	38	37		35
28	23	21	20	18	16	15	13	15	14	15	17	18	20	20	20	21:	:	17	17	16	14	13	12	12	17
29	11	10	9	8	6	6	4	11	14	17	:	:	:	21:	19	20	21		19	17	16	15	15	14	14
30	12	11	12	12	12	12	12	14	18	20	:	:	28	29	30	31	32	32	31	29	26	25	25	23	22
31	25	22	22	26	30	30	29	30	33	35	37	39	39	40	40	40	40	40	37	35	32	31	29	28	33
MEAN	20	23	23	22	22	21	21	21	24	27	29	31	32	33	34	34	35	33	31	29	27	26	26	25	

TOTAL NUMBER OF OBSERVATIONS = 6685 MEAN = 28.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF TEMPERATURE AT 100 FEET(DEG F)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	25	24	24	26	26	26	27	25	29	34	36	37	37	36	37	37	34	31	31	29	26	22	22	21	29
2	21	19	19	16	18	16	16	16	16	16	17	19	20	20	21	21	22	20	18	18	18	17	17	17	18
3	17	17	17	17	17	17	17	17	17	17	18	20	21	22	23	24	24	23	22	20	18	18	17	16	19
4	16	14	13	13	14	14	14	13	14	15	18	19	19	19	20	20	20	19	18	16	14	13	13	13	16
5	12	10	9	11	13	10	10	12	13	16	18	19	20	21	23	24	24	23	22	21	21	17	17	18	17
6	17	17	16	17	16	16	17	16	20	25	28	30	31	31	32	34	34	34	32	29	29	29	29	29	25
7	30	28	26	29	29	28	28	29	34	37	39	39	40	41	42	42	42	42	39	37	37	37	36	36	35
8	37	34	36	36	35	33	34	35	40	43	44	45	46	47	47	45	43	43	42	41	39	37	35	36	40
9	36	36	36	33	37	38	38	38	39	41	43	43	45	45	45	45	45	44	42	42	40	41	41	36	40
10	32	31	24	23	22	20	18	16	16	17	17	17	19	19	18	20	20	20	20	19	18	18	19	18	20
11	19	18	16	17	17	16	15	15	16	18	19	22	23	24	24	25	24	24	23	21	20	18	17	17	19
12	14	14	13	13	13	13	12	13	16	22	25	28	29	31	33	33	34	33	32	29	29	30	29	28	24
13	31	31	32	33	33	32	34						43	44	45	44	44	43	40	40	38	30	28	28	36
14	25	23	21	20	16	18	16	16	17	20	23	23	23	23	21	21	22	24	21	20	18	17	17	16	20
15	11	13	16	15	14	13	12	12	17	22	28	30	30	31	32	34	36	36	35	31	32	30	28	32	25
16	30	30	28	29	28	31	33	33	37	39	40	42	43	45	45	46	46	44	42	41	37	36	37	36	37
17	37	37	35	35	29	27	24	23	23	24	25	25	25	26	26	28	25	25	27	27	25	24	24	24	27
18	21	20	19	20	18	18	17	17	19	20	22	21	21	23		24	25	25	24	21	18	17	17	16	20
19	16	15	16	17	17	16	16	19	22	24	25	26	28	30	31	32	33	32	30	29	29	32	32	33	25
20	32	32	31	30	27	20	21	19	18	19	20	22	23	26	27	27	26	26	25	24	23	23	22	21	25
21	19	17	17	16	15	15	16	17	21	24	26	28	30	32	34	35	37	37	34	31	29	29	29	29	26
22	27	26	26	26	27	26	26	26	32	36	38	40	42	44	45	45	46	45	44	43	42	38	36	37	36
23	37	34	37	36	37	36	37	37	42	46	48	49	50	51	52	51	51	50	48	47	46	45	44	44	44
24	45	42	40	41	39	38	37	38				44	46	46	47	47	47	46	45	44	44	45	45	44	43
25	43	42	41	39	39	35	31	29	28	24	31	34	32	32	35	34	33	33	32	30	27	27	27	26	33
26	25	24	25	25	23	23	23	21	23	26	29	30	31	33	35	35	37	37	38	37	35	34	34	31	30
27	29	28	29	27	26	25	25	26	29	32	36	39	41	44	45	45	45	45	43	40	39	39	38		35
28	20	21	21	19	17	16	13	12	14	15	17	16	18	17	19	19	17	16	17	15	14	14	12	12	17
29	13	13	11	10	10	9	8	11	14	16	:	:	:	20:	19	20	20		18	17	16	16	15	15	14
30	14	13	13	13	13	13	13	14	17	20	:	:	26	26	29	30	31	31	31	30	28	25	26	24	22
31	24	22	22	27	29	30	29	30	32	34	36	37	37	38	38	39	39	38	37	35	33	31	28	29	32
MEAN	25	24	24	23	23	22	22	22	23	26	28	30	31	32	33	33	33	33	31	30	28	27	27	26	

TOTAL NUMBER OF OBSERVATIONS = 670 MEAN = 28.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF TEMPERATURE AT 200 FEET(DEG F)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	23	22	20	25	25	24	24	23	26	32	35	36	35	34	35	35	32	29	29	27	23	19	19	18	27
2	18	16	16	15	15	14	14	14	14	14	16	18	19	20	20	20	21	18	16	15	15	15	14	14	16
3	14	15	15	15	15	15	15	14	13	14	15	16	18	19	20	21	21	20	19	17	16	15	14	14	16
4	13	12	12	11	12	11	11	12	13	14	16	17	17	18	18	18	18	17	16	15	13	11	10	10	14
5	10	8	7	9	10	9	9	10	10	13	16	17	18	19	21	21	21	20	19	20	20	16	16	17	15
6	16	15	16	15	15	15	15	15	18	23	25	27	29	30	31	32	33	32	30	28	28	27	27	27	24
7	28	27	26	29	29	28	28	30	33	36	37	39	40	41	43	43	41	40	37	36	36	36	35	34	35
8	35	36	35	34	33	32	33	34	40	42	44	45	46	46	45	45	41	41	40	40	38	37	36	35	39
9	35	35	35	32	36	36	36	37	37	39	41	43	43	44	44	44	44	42	41	41	39	40	39	34	39
10	31	29	22	21	20	18	16	14	14	15	15	17	16	18	17	17	16	18	18	17	17	17	17	16	18
11	16	15	16	15	15	15	14	13	14	16	17	20	21	22	22	22	21	21	20	18	18	16	14	14	17
12	13	12	12	13	12	13	11	13	14	19	23	26	28	30	31	32	32	31	29	28	28	28	28	27	22
13	30	30	30	31	31	31	32						43	44	45	44	43	41	39	38	36	28	26	25	35
14	23	22	20	18	16	16	15	14	15	17	21	21	21	21	19	19	20	22	20	20	16	15	15	14	18
15	12	12	15	13	14	14	13	13	15	19	25	28	28	29	31	32	33	34	32	30	30	28	26	30	23
16	29	29	29	30	30	31	31	31	36	38	40	40	42	43	44	44	45	42	40	39	36	35	36	36	36
17	36	35	33	31	27	25	23	22	22	23	25	24	24	26	25	27	23	24	26	25	24	22	21	21	25
18	18	18	18	15	16	16	15	16	18	21	23	22	21	23		23	25	25	22	19	16	17	15	14	19
19	13	15	16	17	17	14	14	16	19	23	23	24	27	30	32	31	32	31	29	28	28	29	30	30	24
20	30	29	29	26	24	24	18	17	16	17	19	20	22	25	26	25	24	24	23	23	21	21	20	19	23
21	17	16	16	16	15	16	16	17	20	23	24	26	26	30	31	33	34	35	33	31	29	28	28	28	25
22	27	27	25	25	27	26	25	28	31	34	37	39	40	41	42	43	45	44	44	43	42	40	37	36	35
23	35	35	32	34	36	37	38	37	40	44	46	47	48	49	51	51	50	49	47	46	46	45	43	43	43
24	42	41	39	39	36	37	36	36				42	44	46	46	47	46	45	44	44	43	43	43	42	42
25	41	40	35	37	37	33	28	28	26	29	31	35	33	31	34	33	32	31	30	27	24	24	24	23	31
26	22	21	21	21	21	20	20	20	21	26	28	28	30	31	33	34	35	36	36	35	34	32	32	31	28
27	28	26	21	26	26	25	25	26	29	32	34	36	39	42	43	43	43	43	41	39	37	37	36		34
28	20	19	19	17	15	13	11	11	12	13	17	16	18	19	19	17	16	14	15	14	13	13	12	11	15
29	11	11	9	8	8	8	7	9	12	14	:	:	:	:	17	18	19		17	15	15	14	14	15	12
30	13	12	12	12	11	12	11	12	15	16	:	:	24	26	27	26	29	30	30	29	27	25	25	24	21
31	23	22	23	27	29	29	29	29	31	33	36	35	37	38	39	39	40	39	36	35	32	30	28	28	32
MEAN	24	23	22	22	22	21	20	20	22	24	27	29	30	31	32	32	32	31	30	28	27	26	25	24	

TOTAL NUMBER OF OBSERVATIONS = 8691 MEAN = 26.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

HOURLY TOTAL SOLAR RADIATION(LANGLEY)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	0	0	0	0	0	0	0	8	24	40	52	60	61	54	49	23	7	1	0	0	0	0	0	0	379
2	0	0	0	0	0	0	0	2	6	16	21	19	18	19	19	14	10	3	0	0	0	0	0	0	147
3	0	0	0	0	0	0	0	2	11	16	18	21	26	33	34	25	15	5	0	0	0	0	0	0	206
4	0	0	0	0	0	0	0	2	5	14	20	23	25	30	30	21	12	5	0	0	0	0	0	0	187
5	0	0	0	0	0	0	0	4	22	36	44	40	48	45	47	45	24	5	0	0	0	0	0	0	360
6	0	0	0	0	0	0	0	10	27	42	54	62	64	60	51	39	23	6	0	0	0	0	0	0	438
7	0	0	0	0	0	0	0	10	26	43	54	62	64	61	52	39	23	6	0	0	0	0	0	0	440
8	0	0	0	0	0	0	0	11	26	43	56	63	65	61	39	17	10	3	0	0	0	0	0	0	394
9	0	0	0	0	0	0	0	8	14	24	28	32	26	33	21	14	17	4	0	0	0	0	0	0	225
10	0	0	0	0	0	0	0	2	10	11	13	18	18	20	15	11	7	2	0	0	0	0	0	0	127
11	0	0	0	0	0	0	0	12	30	38	51	62	58	47	50	43	17	8	0	0	0	0	0	0	416
12	0	0	0	0	0	0	2	19	39	49	58	64	67	58	54	38	23	6	0	0	0	0	0	0	477
13	0	0	0	0	0	0	1						70	66	55	43	25	9	0	0	0	0	0	0	269
14	0	0	0	0	0	0	2	17	35	47	56	19	21	11	9	11	14	9	0	0	0	0	0	0	251
15	0	0	0	0	0	0	2	23	37	55	63	66	65	66	55	42	26	9	0	0	0	0	0	0	509
16	0	0	0	0	0	0	1	12	32	49	60	67	68	53	56	43	26	6	0	0	0	0	0	0	473
17	0	0	0	0	0	0	0	2	3	7	10	10	23	21	14	12	5	3	0	0	0	0	0	0	110
18	0	0	0	0	0	0	0	1	5	11	24	27	37	62		25	18	8	0	0	0	0	0	0	218
19	0	0	0	0	0	0	3	17	34	49	61	52	58	60	51	40	25	11	0	0	0	0	0	0	461
20	0	0	0	0	0	0	1	6	12	25	31	45	50	64	44	22	13	4	0	0	0	0	0	0	316
21	0	0	0	0	0	0	3	19	35	50	61	65	64	66	57	43	26	9	0	0	0	0	0	0	498
22	0	0	0	0	0	0	3	18	35	50	61	68	70	60	57	44	28	11	0	0	0	0	0	0	505
23	0	0	0	0	0	0	3	17	34	50	61	69	70	67	59	45	29	12	1	0	0	0	0	0	517
24	0	0	0	0	0	0	2	14				57	69	53	41	20	13	8	0	0	0	0	0	0	267
25	0	0	0	0	0	0	1	4	12	22	41	63	50	54	46	33	17	5	0	0	0	0	0	0	341
26	0	0	0	0	0	0	0	2	7	14	26	31	42	37	63	27	27	7	1	0	0	0	0	0	284
27	0	0	0	0	0	0	8	32	49	53	52	70	71	63	57	26	15	11	1	0	0	0	0	0	523
28	0	0	0	0	0	0	2	11	19	34	48	30	49	41	37	40	13	6	0	0	0	0	0	0	330
29	0	0	0	0	0	0	5	23	31	52	:	:	:	:	33	15	14	2	1	0	0	0	0	0	176
30	0	0	0	0	0	0	3	20	38	54	55	56	60	39	56	46	32	14	1	0	0	0	0	0	476
31	0	0	0	0	0	0	2	13	23	36	57	55	69	49	40	42	32	14	3	0	0	0	0	0	417
TOTAL/10	0	0	0	0	0	0	4	34	68	103	124	137	151	144	129	95	59	21	0	0	0	0	0	0	

TOTAL NUMBER OF OBSERVATIONS = 8716   TOTAL = 10737.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

TEMPERATURE CHANGE FROM 30' TO 100' (DEG F*10)
(TRAILER NO. = 23 PERIOD: 5/ 1/77 TO 5/31/77)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	12	0	12	4	6	2	12	5	-6	-8	-12	-11	-10	-8	-8	-6	-2	0	0	0	-2	-2	-1	-1	-1
2	0	-1	0	0	0	0	0	0	-3	-6	-12	-5	-4	-4	-3	-3	-2	-1	0	0	0	0	0	0	-2
3	0	0	0	0	0	0	0	-1	-3	-7	-12	-10	-5	-5	-3	-6	-5	-2	0	6	5	2	5	6	-2
4	6	4	6	1	1	2	4	1	-2	-4	-6	-6	-4	-4	-3	-3	-1	0	4	6	12	13	18	18	2
5	26	16	12	19	20	38	22	12	0	-2	-6	-6	-6	-5	-3	-6	-6	-2	6	34	35	25	15	20	10
6	21	15	20	41	37	35	29	24	5	-6	-8	-9	-9	-9	-8	-7	-6	-1	7	7	15	7	6	8	8
7	5	9	16	24	30	27	30	32	3	-6	-7	-7	-7	-7	-7	-6	-5	-1	0	3	6	9	12	6	6
8	6	2	16	9	13	9	4	1	-1	-5	-7	-8	-9	-9	-7	-2	0	0	5	24	25	32	28	19	5
9	21	25	11	16	9	5	5	1	0	-3	-4	-5	-4	-6	-4	-3	-3	0	3	10	15	10	8	0	4
10	0	0	-2	-1	-1	-1	-1	-1	-1	-2	-2	-2	-3	-3	-2	-2	-1	0	0	0	0	0	0	0	-2
11	0	0	0	0	0	0	4	0	-3	-3	-5	-4	-3	-3	-4	-4	-2	0	2	1	6	7	5	14	-0
12	22	14	15	21	28	36	34	15	0	-1	-2	-6	-6	-5	-6	-5	-3	-1	3	3	11	16	13	14	8
13	7	4	2	2	3	7	2						-7	-7	-8	-7	-4	-1	1	8	10	5	1	1	0
14	5	10	11	10	7	17	11	0	-5	-6	-6	-5	-5	-4	-3	-2	-3	-2	0	16	3	2	2	2	2
15	0	16	30	16	17	17	12	9	0	-3	-6	-7	-6	-7	-7	-7	-5	-1	0	11	25	22	12	21	6
16	26	19	16	18	15	21	23	8	-3	-5	-7	-8	-9	-9	-9	-8	-6	-1	11	30	18	11	15	12	6
17	5	6	0	0	-1	-1	-2	-2	-2	-5	-6	-5	-5	-7	-4	-2	-2	0	2	0	2	0	1	0	-2
18	0	0	5	4	1	0	-1	-1	-2	-1	-2	-3	-7	-8		-4	-3	0	0	0	0	4	11	8	-0
19	5	14	25	19	30	16	15	0	-6	-8	-8	-7	-9	-10	-10	-7	-5	-2	3	5	1	0	0	0	2
20	0	0	0	0	0	0	-1	-3	-3	-3	-4	-4	-5	-7	-7	-6	-3	-3	1	8	1	0	0	2	-2
21	3	14	12	15	19	23	19	4	-2	-6	-5	-7	-8	-8	-7	-7	-6	-3	2	6	3	7	17	13	3
22	26	15	18	22	16	12	24	12	-3	-6	-7	-6	-6	-6	-6	-6	-8	-3	6	31	30	18	9	8	7
23	11	6	33	26	27	15	21	4	-5	-7	-9	-11	-11	-11	-13	-10	-8	-4	5	27	30	26	20	21	7
24	12	16	6	5	12	10	11	0				-12	-14	-12	-10	-9	-5	-3	0	1	0	0	0	0	0
25	0	0	0	-1	-1	-2	0	-1	-1	-4	-4	-3	-5	-4	-7	-9	-5	-3	-1	-1	-1	-1	-1	-1	-3
26	-2	-1	0	0	0	0	0	0	-3	-3	-4	-5	-6	-3	-4	-4	-5	-3	0	12	16	10	9	15	-0
27	6	13	11	11	14	4	11	5	-3	-4	-5	-7	-9	-10	-9	-7	-5	-4	0	0	1	5	2		0
28	-2	-1	0	0	0	0	4	0	0	-3	0	-3	-4	-3	-3		-4	-2	-1	0	3	9	9	6	-0
29	14	14	13	14	28	23	28	-1	-4	-7				-8	-7	-6	-7		-3	0	-1	0	1	11	4
30	9	7	5	5	1	9	2	-1	-6	-6	-18	-9	-11	-14	-11	-12	-10	-7	-1	13	15	3	6	11	-0
31	10	8	6	14	2	4	3	-1	-6	-9	-13	-13	-13	-13	-12	-12	-12	-7	-1	5	4	0	0	6	-2
MEAN	6	8	9	10	10	10	10	5	-3	-6	-8	-6	-6	-6	-8	-7	-6	-5	1	8	9	7	7	8	

TOTAL NUMBER OF OBSERVATIONS = 6060 MEAN = 2.

* INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

TEMPERATURE CHANGE FROM 30' TO 200' (DEG F*10)
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	2	-6	3	-6	-6	-7	1	-4	-25	-24	-17	-17	-16	-25	-23	-18	-15	-16	-9	-13	-21	-21	-19	-19	-14
2	-19	-19	-17	-16	-18	-18	-18	-19	-22	-23	-34	-25	-21	-18	-20	-21	-20	-19	-20	-18	-19	-18	-18	-17	-21
3	-17	-18	-18	-16	-19	-19	-20	-21	-22	-24	-32	-36	-23	-25	-23	-25	-22	-20	-14	-6	-6	-13	-9	-6	-20
4	0	-9	-3	-12	-13	-12	-8	-11	-19	-21	-26	-26	-26	-26	-24	-23	-21	-16	-7	-4	3	2	3	3	-13
5	16	6	5	13	11	44	24	0	-18	-24	-26	-25	-25	-25	-23	-24	-24	-20	-9	19	24	19	4	11	-2
6	23	12	11	31	31	32	17	21	-2	-22	-25	-24	-25	-24	-24	-23	-23	-17	0	0	11	-1	-1	0	-1
7	-2	2	12	16	26	21	27	29	-8	-22	-17	-10	-8	-13	-3	-3	-19	-15	-8	-4	-3	2	4	-2	-0
8	-1	-6	3	0	2	0	-2	-2	0	-4	-1	-7	-7	-12	-21	-14	-13	-12	-3	16	25	34	43	15	0
9	15	26	3	14	2	-2	-1	0	-13	-19	-15	-9	-14	-11	-9	-11	-10	-14	-3	6	11	4	0	-13	-3
10	-13	-10	-22	-21	-21	-22	-22	-22	-22	-22	-21	-4	-7	-8	-10	-14	-18	-21	-20	-20	-20	-20	-20	-20	-19
11	-19	-17	-17	-19	-19	-16	-9	-16	-23	-23	-21	-25	-24	-23	-25	-26	-22	-20	-13	-12	-2	-1	-8	0	-18
12	16	2	5	25	20	34	26	28	-13	-23	-24	-24	-26	-24	-23	-23	-22	-18	-7	-2	6	9	5	5	-2
13	0	-2	-7	-10	-7	2	-10						-5	-6	-5	-6	-6	-10	-8	0	2	-3	-9	-11	-6
14	-4	6	0	0	-3	3	1	-16	-24	-25	-26	-25	-26	-25	-19	-21	-23	-21	-8	13	-9	-11	-11	-10	-13
15	-11	7	21	9	11	23	15	9	-13	-25	-24	-23	-24	-25	-26	-24	-22	-18	-11	6	18	13	6	17	-4
16	23	14	21	27	29	18	13	0	-19	-20	-15	-18	-22	-20	-18	-19	-10	-13	0	19	12	4	9	13	0
17	0	-12	-14	-15	-17	-20	-21	-21	-21	-22	-23	-13	-22	-15	-18	-17	-22	-15	-8	-15	-10	-18	-12	-13	-17
18	-13	-14	-7	0	-11	-19	-21	-20	-21	-4	0	-6	-18	-20		-22	-17	-16	-15	-17	-20	-9	-1	-7	-14
19	-10	16	26	21	25	11	13	-13	-23	-7	-20	-20	-16	-8	0	-12	-9	-10	-7	-3	-9	-14	-12	-15	-4
20	-14	-15	-12	-12	-15	-17	-21	-24	-24	-25	-27	-26	-25	-26	-27	-24	-23	-22	-13	0	-11	-16	-14	-10	-19
21	-8	3	0	8	13	19	7	-4	-18	-27	-26	-28	-26	-26	-25	-25	-23	-20	-5	0	-3	-1	6	5	-9
22	11	16	9	16	14	3	20	9	-19	-23	-25	-24	-23	-24	-23	-25	-24	-18	-1	26	35	30	5	0	-2
23	0	15	47	33	39	21	25	2	-20	-24	-24	-25	-25	-26	-15	-15	-16	-16	0	26	32	28	15	16	3
24	12	11	3	0	10	8	16	-10				-26	-21	-12	-16	-19	-20	-17	-11	-9	-8	-13	-14	-15	-8
25	-15	-14	-14	-15	-16	-15	-16	-12	-10	-6	-1	3	-1	-17	-21	-23	-24	-21	-17	-15	-19	-19	-19	-17	-16
26	-21	-18	-16	-19	-18	-17	-15	-12	-19	-18	-20	-22	-22	-21	-23	-22	-23	-19	-14	0	7	0	1	16	-15
27	1	6	0	1	6	-5	0	0	-20	-23	-23	-25	-26	-27	-25	-23	-20	-20	-12	-6	-8	-4	-5		-12
28	-14	-16	-15	-15	-15	-19	-9	-16	-6	-12	3	-15	-15	-11	-10		-24	-23	-22	-20	-10	-2	0	-3	-14
29	0	3	1	4	16	17	21	-19	-22	-23			:		-16	-22	-20		-20	-16	-18	-15	-4	8	-6
30	6	6	-3	-2	-10	-1	-8	-19	-26	-26	-34	-28	-29	-32	-30	-29	-27	-22	-15	2	10	2	4	11	-13
31	4	3	17	16	-5	-3	-5	-13	-21	-19	-15	-11	-19	-14	-15	-11	-11	-8	-10	-1	-1	-9	-6	-3	-7
MEAN	-2	-1	0	0	0	0	-0	-7	-19	-21	-21	-20	-21	-20	-20	-21	-20	-18	-11	-2	-0	-2	-3	-2	

TOTAL NUMBER OF OBSERVATIONS = 6685 MEAN = -10.

: INDICATES CALIBRATING DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF BAROMETRIC PRESSURE
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	784	783	782	782	781	781	780	780	779	778	777	777	775	775	774	774	774	774	774	774	774	773	773	775	777
2	775	773	772	772	772	772	772	772	773	773	774	774	775	775	775	776	776	777	778	778	779	779	779	779	775
3	779	780	780	780	780	780	780	780	780	781	781	781	781	781	781	781	781	781	781	782	782	782	783	783	781
4	783	783	784	784	784	784	784	785	785	786	786	786	787	787	787	787	787	787	788	788	789	789	789	790	786
5	790	790	790	790	790	790	790	791	791	792	792	792	792	792	792	792	792	792	792	792	793	793	793	793	791
6	793	793	793	793	793	793	793	794	794	794	794	794	794	794	794	794	794	794	794	794	794	794	795	795	793
7	795	795	795	795	795	795	795	795	795	795	795	794	794	793	793	793	793	792	792	792	792	792	792	792	793
8	792	792	791	791	791	791	790	790	790	790	789	789	789	789	789	789	789	789	790	789	789	789	789	789	790
9	788	788	787	787	786	786	785	785	784	784	783	782	781	780	779	779	778	777	776	775	774	773	773	773	781
10	773	773	773	773	773	773	773	774	775	775	776	777	777	778	779	780	781	782	783	784	785	785	785	786	778
11	787	787	788	788	789	789	790	791	791	792	792	792	792	791	791	791	791	791	791	791	791	791	791	791	790
12	791	790	790	790	790	789	789	789	789	789	788	787	787	786	786	785	785	784	784	784	783	783	782	782	787
13	781	781	779	779	778	778	778						777	776	776	776	776	776	777	777	777	778	779	780	778
14	780	780	780	780	780	781	781	780	780	780	779	779	780	780	781	782	783	784	785	786	787	788	788	788	782
15	788	789	789	789	789	789	790	790	790	791	791	791	791	789	789	789	789	789	789	789	789	789	789	789	789
16	788	788	787	787	787	787	786	786	786	785	785	784	782	781	780	779	778	778	777	777	776	776	776	775	782
17	775	775	775	775	775	775	775	775	775	776	776	776	777	777	778	778	779	780	780	781	781	782	782	782	777
18	783	783	782	781	781	782	782	782	782	782	782	782	782	782		782	782	782	782	783	784	785	785	785	782
19	785	785	785	785	785	785	785	786	786	786	786	785	784	783	783	782	782	781	781	781	781	781	781	780	783
20	780	780	780	781	781	782	782	783	784	784	784	784	784	783	783	783	783	783	783	784	785	786	786	787	783
21	788	788	789	789	789	790	790	791	791	792	793	792	792	792	791	791	791	791	791	791	791	792	792	792	791
22	792	792	792	791	791	792	792	792	793	793	792	792	791	791	790	790	790	789	789	789	789	789	789	789	791
23	788	788	787	787	787	787	787	787	786	786	785	785	784	783	782	782	782	781	781	781	781	781	781	781	784
24	780	780	780	780	780	781	781	781				780	780	779	779	778	778	778	778	778	777	777	777	776	779
25	776	776	776	776	776	776	777	777	778	778	778	778	778	779	779	779	779	780	780	781	781	781	782	782	778
26	782	782	783	782	783	783	783	783	783	784	784	785	784	[illegible]	783	783	784	783	784	784	784	784	784	784	783
27	784	784	784	783	783	783	783	783	782	781	780	779	778	777	776	775	774	773	773	772	772	771	770		778
28	771	773	774	775	775	776	776	777	777	777	777	777	777	777	777	776	777	778	778	778	779	779	778	778	776
29	776	777	777	777	777	777	777	777	777	777	777	777	777	777	777	779	779		779	780	781	782	782	782	778
30	783	783	784	786	785	786	787	788	789	789	790	790	789	789	789	788	788	787	787	787	787	787	787	786	787
31	786	786	785	785	785	785	785	785	785	785	784	783	783	782	781	781	781	781	781	780	780	781	781	780	783
MEAN	784	784	783	783	783	783	784	784	784	784	784	784	783	783	783	783	783	783	783	783	783	783	783	784	

TOTAL NUMBER OF OBSERVATIONS = 2758 MEAN = 784.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF BI-VANE WIND SPEED AT 30 FEET
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	6	5	4	5	7	6	6	6	8	15	27	27	20	18	17	15	15	14	8	8	7	4	5	9	11
2	5	7	3	2	3	4	5	2	1	5	7	7	7	10	9	6	9	8	8	7	5	5	4	3	6
3	4	4	4	3	0	0	2	0	1	3	4	7	6	6	5	3	2	3	2	3	3	3	2	2	3
4	1	0	2	1	0	0	0	0	0	1	7	8	10	10	10	10	9	8	5	3	4	5	4	3	4
5	2	0	0	2	0	3	0	2	3	1	5	5	5	4	2	3	5	2	3	6	3	2	1	1	2
6	4	0	1	5	5	5	4	4	2	5	7	6	6	7	7	6	7	8	9	5	2	4	5	5	5
7	0	7	5	5	3	4	5	4	2	3	11	16	16	13	16	16	10	10	3	9	10	6	5	6	8
8	5	8	5	6	6	5	6	10	18	19	21	17	16	13	9	11	8	5	3	5	4	3	2	4	9
9	1	2	5	4	15	18	20	20	19	13	19	22	17	18	20	19	18	11	11	9	4	6	7	12	13
10	6	10	12	8	10	14	17	13	16	16	14	18	20	23	25	22	17	17	14	13	15	17	15	16	15
11	13	12	14	14	14	12	11	8	12	14	15	17	17	16	14	15	15	13	11	7	4	1	3	2	11
12	3	0	1	0	3	4	1	2	0	3	3	4	9	8	6	9	11	8	6	2	4	9	7	8	5
13	10	9	13	22	21	15	18						23	24	23	20	19	14	9	5	3	9	2	4	14
14	3	5	4	3	2	5	2	0	3	4	4	9	7	5	9	7	6	5	4	5	6	1	2	2	4
15	3	4	5	2	0	2	0	2	1	2	8	14	9	10	11	12	13	8	5	3	4	3	1	8	5
16	6	6	3	5	4	6	8	7	13	17	16	18	16	16	16	15	16	10	5	5	3	5	5	4	10
17	10	11	12	10	10	4	2	0	0	0	1	10	9	13	12	10	5	4	2	3	7	1	3	7	6
18	6	1	3	5	2	6	3	2	5	10	11	11	8	8		6	9	10	10	10	6	2	3	4	6
19	2	4	5	4	6	5	3	6	9	15	14	13	14	16	17	15	16	16	12	9	10	9	15	12	10
20	15	14	9	10	15	11	9	8	6	5	6	4	5	3	6	5	4	6	4	4	7	6	4	7	7
21	4	4	4	1	7	3	2	2	2	4	3	4	5	7	8	9	6	7	7	7	3	2	3	3	4
22	5	4	3	1	0	2	4	3	4	2	1	3	4	3	3	4	5	5	7	7	7	3	1	2	3
23	9	1	5	6	6	5	7	5	7	10	15	14	12	12	16	15	13	10	7	7	8	6	7	10	9
24	10	13	7	8	9	11	9	6				17	18	19	18	19	15	12	10	10	10	13	14	18	15
25	22	22	22	16	20	20	16	13	17	20	17	19	18	13	16	15	11	7	10	5	3	2	1	3	14
26	5	4	6	2	2	1	1	2	0	2	5	7	3	1	2	5	4	4	0	4	3	1	0	2	5
27	2	0	1	2	3	0	0	0	2	4	3	3	5	6	6	10	9	10	10	11	13	11	10		6
28	12	15	4	13	9	7	6	12	14	12	14	10	10	12	15	11	12	8	11	6	3	4	3	2	9
29	3	4	3	2	4	6	3	4	7	10	10	13	12	17	14	12	13		14	10	4	2	3	6	7
30	4	2	2	0	0	1	0	1	0	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	1
31	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
MEAN	6	6	6	6	6	6	6	5	6	8	10	12	11	11	12	11	10	9	7	6	6	5	5	6	

TOTAL NUMBER OF OBSERVATIONS = 8299 MEAN = 8.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF BI-VANE WIND SPEED AT 100 FEET
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	7	[illegible]	6	8	11	9	11	12	11	10	30	29	23	20	19	18	17	17	12	10	8	5	6	11	13
2	6	9	4	5	4	5	6	4	2	6	7	8	8	15	12	9	11	11	11	9	6	5	5	4	7
3	5	5	5	4	1	1	4	1	1	4	6	9	6	8	6	4	2	4	4	2	2	1	0	1	4
4	2	0	2	1	0	0	0	0	0	1	8	10	12	13	13	13	12	12	8	5	6	4	4	4	5
5	3	0	0	2	3	2	0	5	4	1	6	7	8	5	2	4	6	3	3	7	6	2	1	1	3
6	3	1	1	2	3	5	2	4	2	5	8	7	7	8	7	7	8	10	14	7	3	4	8	7	6
7	13	11	6	6	4	4	5	4	5	4	14	20	19	17	20	20	12	13	6	14	14	9	6	6	11
8	7	13	7	6	8	7	10	14	23	24	26	21	19	16	11	14	11	7	3	7	6	3	3	6	11
9	5	6	6	4	21	24	27	26	23	17	24	26	21	23	25	25	23	14	15	12	5	9	9	14	17
10	7	12	15	14	13	17	21	16	20	19	16	22	25	29	31	27	21	21	17	10	18	20	18	19	19
11	15	14	17	17	17	14	15	11	14	17	18	20	20	18	17	17	18	15	13	9	7	2	1	0	14
12	1	0	0	0	1	2	2	3	0	4	3	5	9	8	6	12	14	10	8	5	8	14	11	12	6
13	14	13	17	27	27	20	24						29	30	29	25	25	19	13	10	6	14	5	6	19
14	5	4	4	5	2	5	3	0	4	5	5	10	8	5	10	8	0	6	6	0	9	3	1	2	5
15	4	5	5	0	0	1	0	0	1	2	10	18	12	13	13	15	16	9	6	3	4	2	2	14	6
16	11	11	6	8	6	8	11	10	16	22	22	22	20	20	20	19	20	14	9	9	5	4	7	7	13
17	15	16	17	14	14	5	3	0	0	0	2	12	9	14	13	11	7	6	2	4	10	2	3	9	8
18	7	1	4	6	3	8	4	3	7	14	15	15	11	11		7	11	12	12	13	7	1	3	3	6
19	2	9	10	[illegible]	12	10	9	10	12	19	17	16	18	19	22	20	21	21	16	14	15	14	19	17	15
20	12	16	12	12	18	13	10	9	7	6	8	5	3	4	8	7	6	7	6	4	10	9	6	11	9
21	5	6	4	2	7	4	2	1	2	5	3	5	6	8	9	9	7	8	9	10	5	3	3	3	5
22	3	5	1	1	4	2	4	2	4	2	1	4	3	4	4	5	6	6	9	10	11	6	2	4	4
23	1	6	10	12	11	9	10	6	9	12	16	17	14	15	20	18	16	14	12	13	14	12	13	15	12
24	14	[illegible]	11	12	14	16	14	11				22	23	24	25	26	19	16	14	14	13	16	19	23	17
25	27	27	27	25	26	25	21	17	21	25	22	23	22	17	18	18	15	9	13	6	3	4	2	3	17
26	5	5	7	1	3	1	1	4	1	3	0	9	4	1	3	6	5	5	0	2	1	0	0	1	3
27	1	3	3	2	1	0	0	0	2	3	3	3	4	7	8	11	10	11	13	16	18	16	14		6
28	15	20	6	17	12	10	6	14	16	14	16	13	13	15	19	14	16	4	12	7	4	0	3	1	11
29	3	5	4	1	6	5	2	4	7	11	10	14	13	19	15	13	14		17	12	5	3	6	11	9
30	8	4	3	2	0	1	0	1	3	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	2
31	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
MEAN	6	6	7	7	8	8	8	7	8	10	12	14	13	14	14	14	13	11	10	9	8	7	6	8	

TOTAL NUMBER OF OBSERVATIONS = 6299   MEAN = 10.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF BI-VANE WIND SPEED AT 200 FEET
TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	6	6	3	9	10	9	10	10	11	21	35	32	24	19	20	18	18	19	13	10	8	5	6	12	14
2	7	11	5	5	4	5	7	5	4	7	8	9	9	13	11	9	10	10	11	9	6	4	4	4	7
3	3	4	4	4	2	1	4	1	2	4	5	8	7	7	6	4	2	3	3	2	2	1	1	1	3
4	1	1	2	1	1	1	1	1	1	2	8	10	12	14	13	12	11	11	9	6	7	2	2	2	5
5	3	1	1	3	2	1	1	5	4	1	6	6	5	4	2	3	6	2	3	4	4	3	3	4	3
6	3	1	1	1	1	2	2	1	2	7	8	7	8	8	8	7	8	10	17	9	7	6	11	11	6
7	16	12	6	9	6	3	5	4	5	4	16	21	21	18	21	20	11	15	8	18	17	12	5	4	12
8	9	18	9	4	6	6	14	16	27	25	29	22	21	17	11	14	11	7	2	4	4	4	4	5	12
9	7	10	4	4	26	28	32	31	26	17	25	28	22	23	27	25	24	16	18	13	5	11	10	16	19
10	8	12	15	9	12	18	21	17	22	21	17	22	26	31	34	30	24	23	19	18	21	23	20	21	20
11	17	16	20	15	18	15	15	11	15	17	19	21	21	19	17	17	17	15	12	10	9	4	1	1	14
12	1	1	1	1	1	1	1	2	1	3	4	5	11	9	7	12	14	10	8	6	11	13	11	12	6
13	16	13	20	33	32	23	26						32	33	31	26	27	20	14	12	9	14	5	7	21
14	7	5	5	5	2	3	4	1	4	4	6	9	8	5	11	10	8	7	6	6	9	3	1	1	5
15	2	1	1	1	1	1	1	1	1	1	11	18	11	11	12	13	15	10	7	2	4	2	4	12	6
16	15	11	7	10	5	9	11	12	17	23	24	24	22	21	21	20	22	15	10	9	7	4	8	11	14
17	18	18	19	17	17	7	4	1	1	1	2	14	9	14	13	11	6	5	2	3	9	2	2	8	9
18	6	1	2	3	3	7	3	3	7	14	13	12	9	9		7	10	11	11	13	6	1	3	1	7
19	1	6	6	9	11	11	10	10	11	17	14	14	16	18	21	19	19	20	15	12	16	14	19	16	14
20	17	15	11	12	18	14	10	8	6	6	7	4	2	3	7	6	5	6	5	2	10	8	7	10	8
21	4	3	3	1	5	3	1	1	1	4	3	4	6	8	9	9	7	8	11	14	7	5	4	4	5
22	2	3	2	3	8	3	3	2	2	1	1	2	2	4	4	4	5	5	7	7	9	9	4	4	4
23	2	4	10	9	10	9	7	5	9	12	19	17	14	15	21	19	16	15	12	12	13	12	13	16	12
24	13	17	13	14	16	19	17	13				23	25	26	28	25	19	16	15	14	15	18	20	25	18
25	26	27	26	24	25	26	22	16	23	28	28	27	24	18	19	18	13	10	14	5	3	4	2	4	18
26	6	5	6	3	4	2	1	5	1	3	7	9	4	1	2	6	4	4	1	1	1	1	1	1	3
27	2	3	4	1	1	1	1	1	2	3	3	3	5	6	10	13	12	14	18	21	22	20	15		8
28	17	21	6	19	12	11	6	15	17	14	17	14	14	16	18	14	16	5	13	7	4	5	4	1	12
29	2	5	4	3	4	4	3	5	8	12	12	15	14	19	16	15	17		18	14	8	5	8	11	9
30	10	6	5	6	2	2	0	1	4	5	4	4	6	9	11	10	11	10	7	6	6	3	2	2	5
31	5	2	1	2	3	9	5	0	7	17	19	22	19	18	20	22	21	20	14	13	11	7	7	5	11
MEAN	8	8	7	8	9	8	8	7	8	10	12	14	14	14	15	14	13	11	10	9	9	7	7	8	

TOTAL NUMBER OF OBSERVATIONS = 6758 MEAN = 10.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF HORIZONTAL BI-VANE WIND DIRECTION AT 30 FEET
(TRAILER NO. - 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	117	67	66	108	103	152	154	157	109	156	191	188	199	185	191	201	243	216	201	208	235	304	293	303	176
2	245	308	237	327	204	294	302	298	329	294	294	292	303	297	299	288	292	283	304	301	305	284	280	274	295
3	251	289	282	271	268	278	296	279	312	308	313	315	318	336	356	316	305	354	346	271	264	244	234	265	295
4	297	140	282	230	159	244	245	218	249	341	336	333	346	348	359	344	352	342	317	290	271	241	217	171	281
5	237	217	341	186	224	183	151	166	148	53	327	317	326	341	343	315	310	332	259	205	186	299	121	104	258
6	227	43	127	113	99	115	106	65	43	221	211	195	202	208	195	192	202	193	183	137	104	87	169	157	154
7	125	155	116	145	103	96	104	76	122	268	197	193	196	203	210	213	203	185	181	194	184	172	114	59	163
8	132	195	80	79	66	78	175	146	189	191	194	196	208	255	240	317	333	328	159	191	235	174	19	138	174
9	164	247	133	86	101	181	185	178	170	184	191	195	197	210	217	214	210	202	187	181	145	186	268	311	190
10	311	325	350	339	343	345	342	347	354	337	321	315	328	335	336	336	336	338	339	330	358	346	343	349	336
11	350	342	343	325	332	332	317	313	333	345	336	352	356	358	353	359	7	12	18	36	55	136	206	182	349
12	211	169	283	193	216	253	113	106	76	65	74	171	155	180	216	179	170	186	150	97	122	124	110	93	152
13	147	111	125	176	173	170	184						196	194	208	211	203	207	202	207	231	315	274	308	197
14	257	229	235	239	219	211	187	13	306	307	320	309	320	305	282	270	244	240	89	191	247	297	197	181	256
15	135	157	235	58	251	224	335	202	36	58	218	198	194	185	192	212	201	182	185	159	209	220	81	170	189
16	151	130	122	101	110	135	150	155	187	187	202	190	199	202	205	210	219	236	239	207	235	159	178	224	183
17	212	230	253	205	266	273	282	10	37	313	280	247	249	211	215	245	86	62	111	276	265	301	166	253	259
18	224	152	165	173	294	270	287	286	208	276	279	282	262	279		278	275	290	290	306	29	198	246	230	263
19	175	196	199	195	199	197	169	190	201	206	193	199	201	205	216	208	213	202	182	187	204	231	220	228	201
20	221	251	201	282	271	302	29	42	26	25	7	10	37	324	342	276	7	74	115	191	310	325	329	335	335
21	65	167	267	188	246	356	168	90	47	338	356	142	263	255	208	200	228	220	193	189	105	112	108	123	174
22	25	105	67	11	315	115	107	91	69	179	315	41	19	34	25	219	196	162	162	179	172	177	220	193	126
23	144	150	153	162	172	163	166	121	131	170	192	202	207	205	219	226	228	212	198	199	197	188	189	179	181
24	169	171	153	192	191	178	167	163				191	198	212	205	193	190	198	195	183	152	173	175	179	182
25	141	144	195	196	169	190	191	204	203	205	198	200	213	191	195	174	176	178	185	296	141	106	329	348	193
26	24	326	323	303	296	238	160	122	243	355	319	312	287	54	28	334	323	304	55	220	170	236	223	287	302
27	157	274	261	210	249	217	43	40	122	105	129	169	237	212	196	199	199	193	204	192	190	184	227		193
28	273	251	344	290	203	200	234	252	255	267	203	270	270	259	258	262	319	283	270	15	166	214	70	195	267
29	191	207	215	140	205	184	111	204	249	275	275	255	270	234	240	232	225		217	215	238	209	187	199	220
30	227	233	217	253	46	200	232	86	36																216
31																									
MEAN	193	196	214	193	227	210	176	140	76	279	265	237	246	239	241	262	243	233	197	210	202	211	206	211	

TOTAL NUMBER OF OBSERVATIONS = 6299 MEAN = 220.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF HORIZONTAL BI-VANE WIND DIRECTION AT 100 FEET
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	127	100	106	114	105	132	143	148	112	160	193	193	203	188	195	205	243	218	207	214	238	306	297	305	179
2	299	306	301	327	295	300	307	307	323	296	296	295	306	299	303	294	299	288	306	307	309	294	292	288	300
3	290	300	293	286	303	296	310	308	325	319	323	321	319	340	360	327	318	331	337	291	274	243	268	265	306
4	217	178	277	231	220	236	231	218	250	302	340	337	349	351	1	346	355	347	335	322	297	271	242	161	286
5	165	342	329	110	155	169	10	119	103	21	330	324	333	345	347	330	323	338	280	214	191	242	158	160	322
6	215	313	65	111	111	146	129	114	119	190	200	198	202	208	195	195	203	192	181	162	177	144	173	176	170
7	164	165	151	165	165	126	129	130	138	257	198	194	198	203	211	212	204	191	198	201	188	181	123	71	174
8	157	190	152	65	60	94	195	182	191	194	197	200	211	235	241	323	336	334	138	161	179	145	132	153	172
9	204	191	155	115	183	182	185	179	171	184	191	195	198	210	215	212	209	203	190	183	174	202	265	303	192
10	302	334	354	347	351	351	349	353	358	344	329	324	335	342	342	343	342	346	344	336	344	351	348	354	342
11	359	354	354	333	340	342	331	326	341	352	344	359	1	3	359	4	14	18	24	29	38	29	248	158	356
12	171	136	241	311	194	155	177	117	42	57	72	175	154	188	213	178	168	186	149	122	137	125	109	96	150
13	157	121	130	179	181	177	191						205	203	216	218	212	216	213	221	254	313	291	315	207
14	293	264	265	275	252	234	217	73	319	319	329	320	325	314	287	278	250	248	92	177	258	285	133	131	273
15	111	129	230	69	110	219	319	158	3	8	224	200	196	186	193	213	203	183	188	165	210	202	138	171	181
16	161	142	149	139	118	161	156	167	189	191	205	200	203	206	209	214	222	238	243	221	303	136	176	205	187
17	219	242	254	269	291	276	262	106	360	293	251	256	256	218	224	251	82	57	128	257	244	285	150	228	250
18	224	153	159	156	287	271	283	276	270	278	282	283	264	280		277	277	293	295	306	17	357	245	213	270
19	179	199	201	201	204	202	198	197	206	212	196	203	206	210	219	210	214	204	187	192	203	228	221	227	204
20	227	236	235	266	275	302	34	46	31	50	13	11	358	345	346	292	13	80	117	192	324	332	333	341	340
21	24	139	151	123	224	198	146	67	5	331	346	149	260	236	217	208	233	227	200	198	142	151	146	168	182
22	131	122	120	152	191	171	136	148	77	199	257	27	3	18	6	217	197	163	157	162	160	171	194	192	158
23	194	163	162	146	157	153	152	134	140	174	170	199	204	209	216	223	224	210	197	194	184	189	186	178	182
24	175	167	166	193	186	175	165	162				194	201	215	208	197	190	201	201	188	159	176	178	180	184
25	188	199	200	203	195	197	199	211	210	211	205	206	219	198	201	165	184	187	189	286	122	89	297	318	201
26	351	303	296	266	275	222	133	94	6	325	320	318	299	52	23	334	324	316	334	172	240	66	235	245	312
27	163	275	289	225	266	110	40	349	41	66	100	153	259	217	207	199	205	202	215	197	195	191	227		199
28	280	296	333	296	291	276	253	259	260	273	270	277	276	267	267	270	315	283	277	337	119	182	296	143	275
29	223	213	219	152	198	183	132	201	283	273	273	255	277	237	243	233	229		221	219	237	221	195	198	223
30	205	218	190	166	134	159	172	70	303																173
31																									
MEAN	200	202	209	187	207	196	185	105	6	261	263	242	252	244	245	245	246	237	208	211	211	210	213	200	

TOTAL NUMBER OF OBSERVATIONS = 6298 MEAN = 221.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF HORIZONTAL BI-VANE WIND DIRECTION AT 200 FEET
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

HOUR

DAY	1	2	3		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	120	147	125	120	116	141	141	144	121	171	198	198	207	194	200	209	243	222	216	221	246	308	300	303	186
2	303	312	309	311	298	302	312	306	329	292	289	290	304	300	303	295	298	283	310	315	318	303	300	298	303
3	303	306	299	296	316	310	324	329	330	316	321	321	315	341	360	327	309	331	345	324	309	271	303	276	315
4	233	229	279	253	242	279	302	295	266	303	341	339	350	352	360	349	355	350	344	336	319	279	263	149	304
5	116	96	355	86	118	170	102	101	87	14	337	329	338	350	358	332	320	312	258	210	179	194	176	175	51
6	209	187	158	191	188	181	187	157	173	201	204	204	206	211	202	201	207	198	189	189	202	187	196	194	192
7	195	187	159	187	197	186	176	183	181	251	202	200	203	207	213	215	208	200	229	208	202	197	161	92	194
8	179	200	202	111	101	136	200	169	198	201	203	206	216	233	245	323	336	335	87	142	152	167	179	179	184
9	203	194	163	172	190	169	193	190	183	191	197	202	205	214	219	217	213	210	201	190	208	216	262	312	202
10	316	336	355	362	351	351	349	353	358	344	330	325	337	343	344	344	343	346	345	338	345	351	348	354	343
11	358	355	355	355	341	344	336	327	342	351	344	358	360	1	358	3	11	16	21	23	23	8	12	148	358
12	67	196	240	110	154	149	163	126	114	80	82	169	164	194	214	187	178	194	162	151	155	140	127	116	149
13	160	136	149	184	160	182	193						205	209	219	220	215	219	217	224	257	322	299	326	210
14	308	285	279	290	201	242	248	247	310	314	329	317	326	310	287	277	251	250	113	191	262	273	142	117	276
15	107	116	203	190	120	167	83	318	344	23	188	201	198	188	194	211	202	185	191	161	200	161	196	161	179
16	161	150	147	146	102	179	166	173	191	194	207	202	265	206	209	212	221	235	238	220	299	111	162	205	190
17	220	240	201	271	296	261	277	113	4	285	248	257	254	220	226	250	94	199	216	257	253	295	186	239	248
18	252	171	161	170	292	279	294	291	275	261	267	288	266	282		279	280	299	295	312	29	360	278	248	276
19	206	221	223	222	219	216	216	211	215	218	205	210	212	215	224	216	219	210	199	205	210	228	228	233	215
20	232	241	249	287	277	305	31	42	29	31	12	12	6	331	342	202	6	73	194	194	325	336	329	340	338
21	3	105	125	65	241	210	184	191	201	330	3	161	263	236	219	210	231	225	203	205	206	191	193	205	204
22	175	165	175	177	178	171	160	172	125	183	209	79	356	24	4	207	193	164	156	153	149	168	183	191	167
23	197	167	158	141	149	154	155	146	153	180	197	205	208	210	219	220	226	214	206	207	191	202	200	194	187
24	191	176	186	196	196	161	175	179				202	207	221	213	201	190	204	205	194	171	182	184	185	192
25	188	197	197	200	193	195	198	206	207	209	216	207	218	201	201	166	188	190	198	287	138	103	298	327	201
26	1	318	305	294	276	224	146	167	56	335	315	320	295	41	3	323	310	298	219	178	258	170	140	252	296
27	227	201	295	261	262	196	121	218	110	65	116	166	226	216	205	199	202	202	215	205	203	199	224		206
28	261	301	359	305	296	278	204	261	261	275	273	278	279	269	268	270	352	286	281	360	114	200	305	70	285
29	271	259	247	220	223	218	214	228	298	278	277	258	280	243	247	239	236		230	227	239	235	225	225	242
30	223	237	233	216	206	208	179	121	358	360	41	351	117	171	175	165	177	161	182	170	151	122	74	133	170
31	245	243	64	225	203	198	205	25	216	225	228	230	221	232	226	231	224	233	233	237	292	309	297	292	239
MEAN	221	219	220	210	218	209	195	169	227	279	258	245	249	243	244	243	242	234	215	210	223	219	228	215	

TOTAL NUMBER OF OBSERVATIONS = 8756 MEAN = 226.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF VERTICAL BI-VANE WIND DIRECTION AT 30 FEET
TRAILER NO. = 23 PERIOD(3/ 1/77 TO 3/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	-10	-6	-9	-8	-5	-8	-8	-6	-1	-3	0	0	0	0	0	0	0	-1	-4	-5	-7	-2	6	-4	-4
2	-3	-6	-11	-3	9	3	4	18	31	7	0	0	0	-3	-4	-6	-6	-8	-9	-10	-12	-12	-9	-3	-2
3	0	3	6	16	33	34	31	34	34	26	13	0	0	0	-1	-4	-7	-6	-8	-12	-11	-10	-10	-8	5
4	-1	13	7	17	34	32	34	34	34	32	8	2	0	-3	-4	-5	-5	-6	-10	-13	-12	-11	-9	-6	6
5	0	14	33	19	32	20	33	23	16	26	0	-6	-9	-11	-17	-17	-9	-19	-22	-11	-18	-25	-26	-19	-0
6	-22	-25	-19	-17	-15	-16	-19	-14	-23	-12	-10	-9	-8	-8	-8	-9	-6	-6	-6	-9	-22	-13	-14	-16	-15
7	-11	-11	-12	-13	-17	-12	-10	-12	-14	-14	-5	-2	-2	-2	0	0	-1	0	-16	-5	-2	-8	-6	-3	-8
8	-9	-7	-9	-1	-3	-7	-10	-4	0	0	0	0	0	0	0	1	0	0	-9	-3	-6	-18	-13	-6	-5
9	-31	-15	-8	-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-4	-2	-2	0	-3
10	-3	0	0	-4	-3	-2	-2	-4	-4	-5	-6	-6	-6	-6	-6	-7	-8	-9	-9	-11	-10	-10	-11	-10	-7
11	-11	-12	-12	-13	-13	-10	-14	-15	-13	-12	-11	-9	-9	-8	-8	-8	-7	-8	-8	-11	-18	-14	-15	-32	-13
12	-24	6	-3	-32	-9	-10	-25	-20	-22	-19	-13	-15	-11	-11	-13	-9	-7	-9	-10	-18	-15	-7	-6	-7	-14
13	-8	-6	-6	-6	-6	-6	-6						0	0	0	0	0	0	-1	-5	-10	0	-25	-11	-6
14	-12	-9	-11	-14	-19	-11	-25	-32	-15	-11	-11	-5	-8	-10	-8	-16	-14	-15	-16	-13	-15	-22	-11	1	-14
15	2	4	3	0	2	-4	-5	-9	-13	-19	-10	-5	-6	-5	-4	-2	-1	-4	-7	-8	-8	-13	-20	-6	-6
16	-6	-5	-19	-7	-7	-6	-3	-5	-1	0	0	0	0	0	0	0	1	0	0	0	-11	-2	-1	-6	-4
17	0	0	0	0	0	-7	3	45	45	45	45	15	12	4	1	5	15	22	32	25	4	34	22	7	15
18	0	33	13	6	29	8	26	26	15	-2	-4	-4	-4	-6		-9	-10	-10	-10	-9	-12	-29	-19	-19	-0
19	-22	-16	-17	-21	-16	-19	-14	-17	-13	-10	-10	-10	-9	-8	-7	-7	-6	-6	-7	-8	-8	-8	-6	-7	-12
20	-6	-6	-9	-8	-7	-9	-8	-10	-12	-13	-13	-14	-16	-12	-10	-14	-11	-10	-15	-19	-11	-11	-15	-10	-12
21	-18	-19	-23	-20	-17	-24	-27	-24	-14	-14	-13	-15	-14	-10	-9	-9	-10	-8	-9	-10	-19	-13	-16	-19	-17
22	-15	-13	-15	-11	-2	-24	-15	-12	-11	-22	-26	-19	-13	-8	-10	-12	-6	-5	-2	-3	-4	-21	-24	-20	-14
23	-31	-29	-12	-2	-5	-5	-3	-5	-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-4
24	0	0	-2	-1	0	0	0	-1				0	0	0	0	0	0	0	0	0	-1	0	0	0	-0
25	0	0	0	0	0	0	-4	-7	-8	-8	-6	-7	-7	-10	-8	-7	-10	-12	-11	-14	10	28	30	29	-1
26	12	21	13	31	29	30	30	29	29	26	13	0	-9	-12	-20	-15	-16	-19	21	-25	-26	-25	-21	-19	3
27	-33	-24	-24	-30	-27	-27	2	-13	-14	-10	-9	-13	-11	-10	-6	-4	-4	-3	-4	-4	-3	-4	-4		-13
28	-7	-7	-13	-9	-9	-12	-20	-10	-9	-10	-6	-9	-9	-8	-7	-8	-5	-19	-10	-19	-21	-19	-24	-23	-13
29	-18	-11	-22	-30	-21	-21	-21	-22	-10	-10	-9	-8	-8	-6	-7	-6	-10		-8	-10	-19	-24	-20	-14	-16
30	-18	-22	-21	-22	-24	-13	13	-14	-38	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	-19
31	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
MEAN	-11	-5	-7	-7	-3	-5	-3	-2	-2	-2	-4	-5	-6	-6	-6	-6	-6	-6	-6	-9	-11	-10	-10	-9	

TOTAL NUMBER OF OBSERVATIONS = 8297 MEAN = -7.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF VERTICAL BI-VANE WIND DIRECTION AT 100 FEET
TRAILER NO. = 23 PERIOD(3/ 1/77 TO 3/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	-15	-16	-18	-13	-10	-10	-9	-10	-11	-10	-10	-10	-10	-10	-11	-10	-8	-9	-10	-9	-13	-14	-16	-10	-12
2	-15	-10	-18	-23	-22	-22	-19	-28	-38	-19	-12	-12	-12	-10	-10	-13	-14	-14	-13	-13	-12	-18	-21	-26	-18
3	-20	-28	-30	-36	-44	-44	-34	-44	-44	-33	-22	-13	-12	-14	-15	-16	-29	-19	-18	-30	-27	-38	-42	-38	-30
4	-31	-44	-35	-38	-44	-44	-44	-44	-44	-42	-20	-16	-13	-11	-9	-9	-11	-11	-12	-15	-14	-19	-23	-21	-27
5	-29	-44	-44	-37	-32	-36	-43	-21	-22	-38	-16	-14	-17	-19	-28	-25	-15	-24	-27	-14	-15	-32	-32	-37	-29
6	-26	-38	-38	-28	-27	-21	-27	-19	-32	-19	-11	-14	-13	-12	-12	-12	-14	-13	-12	-16	-23	-22	-18	-13	-21
7	-12	-13	-16	-15	-20	-20	-20	-22	-23	-23	-15	-14	-14	-15	-15	-15	-16	-16	-20	-15	-16	-17	-22	-22	-18
8	-23	-15	-21	-25	-23	-22	-16	-16	-17	-19	-19	-19	-20	-20	-20	-21	-22	-20	-25	-20	-24	-34	-32	-25	-23
9	-20	-20	-23	-29	-21	-21	-20	-20	-20	-19	-19	-19	-19	-20	-18	-19	-18	-20	-20	-20	-23	-21	-22	-21	-22
10	-16	-17	-21	-20	-21	-20	-21	-19	-18	-19	-18	-18	-18	-17	-14	-19	-20	-20	-20	-19	-20	-20	-21	-22	-20
11	-22	-23	-22	-22	-21	-22	-22	-22	-21	-22	-21	-20	-21	-21	-20	-20	-20	-21	-22	-22	-23	-30	-35	-38	-24
12	-35	-40	-41	-44	-34	-34	-30	-25	-40	-22	-26	-23	-23	-23	-22	-22	-23	-24	-24	-30	-26	-25	-25	-25	-29
13	-23	-20	-22	-21	-21	-22	-21						-19	-20	-20	-20	-19	-18	-20	-21	-22	-23	-27	-23	-23
14	-25	-26	-25	-25	-26	-22	-26	-38	-22	-24	-22	-21	-21	-24	-23	-21	-24	-23	-25	-24	-23	-30	-39	-36	-27
15	-33	-26	-33	-40	-42	-37	-39	-38	-37	-31	-24	-26	-21	-21	-22	-21	-22	-23	-22	-27	-26	-35	-35	-24	-30
16	-24	-25	-29	-26	-26	-25	-25	-24	-22	-21	-21	-22	-21	-21	-22	-21	-22	-22	-22	-21	-30	-28	-23	-26	-25
17	-23	-22	-22	-22	-22	-24	-29	-44	-42	-42	-40	-22	-20	-19	-18	-20	-26	-30	-36	-29	-19	-37	-30	-22	-29
18	-26	-41	-25	-21	-29	-23	-31	-53	-26	-20	-20	-20	-22	-20		-21	-21	-20	-21	-20	-22	-38	-31	-29	-26
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21	-25	-24	-29	-31	-22	-34	-33	-37	-32	-21	-25	-16	-10	-18	-17	-19	-19	-21	-22	-21	-26	-31	-31	-31	-26
22	-33	-27	-30	-39	-27	-33	-29	-30	-29	-30	-30	-25	-27	-27	-26	-21	-24	-25	-21	-24	-25	-28	-38	-26	-29
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30	-25	-27	-31	-34	-41	-30	-41	-31	-20	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	-33
31	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
MEAN	-26	-27	-27	-26	-28	-28	-26	-29	-26	-25	-22	-20	-20	-20	-20	-20	-21	-21	-22	-22	-23	-28	-29	-26	

TOTAL NUMBER OF OBSERVATIONS = 8299 MEAN = -25.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF VERTICAL BI-VANE WIND DIRECTION AT 200 FEET
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	-7	-7	-6	-5	-7	-6	-7	-7	-6	-5	-7	-6	-6	-6	-4	-6	-4	-6	-7	-7	-5	-5	-3	-4	-7
2	-2	-5	-9	-11	-13	-13	-12	-17	-21	-14	-6	-4	-5	-5	-3	-2	-5	-5	-4	-6	-7	-10	-11	-15	-9
3	-16	-18	-21	-22	-34	-40	-29	-42	-41	-30	-19	-10	-4	-4	-5	-1	-2	-3	-1	0	-2	-10	-21	-15	-17
4	-23	-37	-21	16	50	50	50	50	50	21	-20	-17	-11	-7	-7	-6	-5	-5	-3	-3	-5	-4	-8	-14	2
5	-19	-18	21	-22	-26	17	22	-14	-15	-17	-6	-3	-5	-5	0	0	-3	-3	-3	-8	-6	-3	-5	-5	-6
6	-3	3	0	-3	0	-5	-1	-1	-5	-7	-8	-11	-8	-6	-4	-5	-10	-9	-9	-10	-8	-7	-3	-4	-6
7	-6	-7	-9	-9	-8	-6	-10	-6	-3	0	-4	-7	-8	-7	-7	-8	-4	-7	-2	-7	-9	-9	-6	-7	-7
8	-5	-6	0	-7	-4	-2	-2	-1	-6	-7	-7	-5	-6	-4	-2	-3	0	0	8	0	0	0	-1	-3	-3
9	-3	-2	0	-1	-4	-5	-5	-5	-5	-2	-3	-4	-2	-4	-4	-3	-3	-3	-4	-4	0	-1	-2	0	-4
10	-2	-2	-4	-4	-5	-5	-5	-4	-4	-4	-4	-4	-5	-4	-4	-4	-4	-4	-5	-4	-4	-4	-3	-4	-5
11	-4	-4	-5	-5	-5	-5	-5	-6	-5	-4	-3	-5	-4	-5	-3	-3	-3	-3	-5	-3	-2	-1	2	0	-4
12	0	-5	-9	-17	-19	-17	-18	-10	-7	0	0	0	-7	-7	-3	-3	-7	-6	-7	-7	-8	-8	-8	-7	-8
13	-9	-10	-7	-8	-8	-9	-9						-8	-7	-7	-7	-7	-8	-9	-9	-4	2	5	3	-7
14	3	5	5	5	-1	-5	-4	-5	-4	-6	-1	-4	-2	-4	-4	-2	-4	-4	-6	-6	-6	-14	-40	-36	-6
15	-32	-41	-41	27	50	-2	32	-22	-20	-5	-5	-9	-9	-7	-11	-10	-10	-11	-12	-4	-12	-5	-2	-10	-8
16	-13	-14	-9	-13	-14	-15	-17	-15	-10	-12	-15	-14	-13	-11	-15	-13	-10	-3	-1	0	0	3	-1	-5	-10
17	-7	-7	-5	-1	-1	3	-9	43	50	46	18	-11	-12	-12	-10	-9	-7	-9	-13	-12	-9	-14	-24	-12	-2
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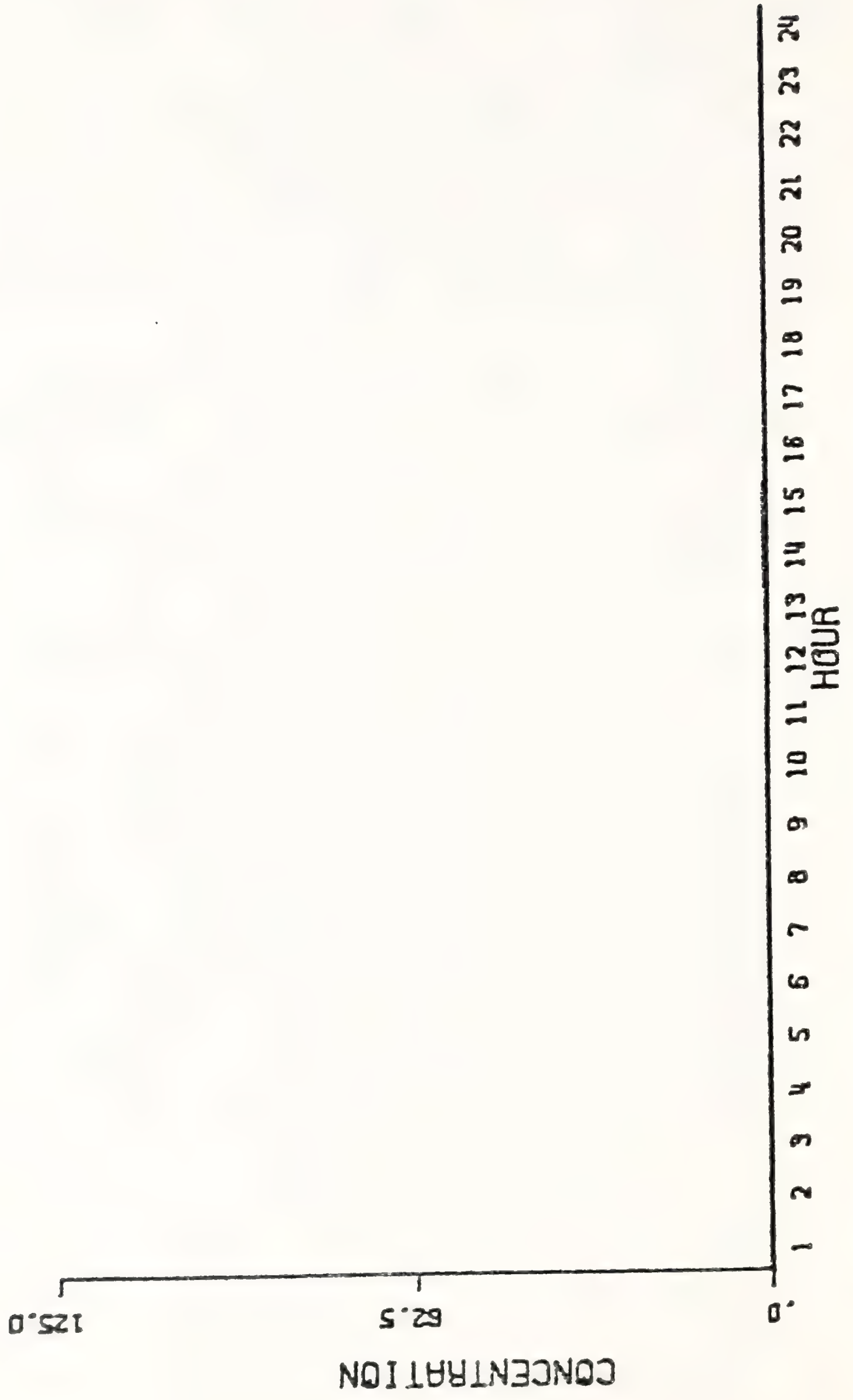
MEAN	-9	-11	-9	-7	-7	-7	-5	-6	-6	-5	-7	-6	-6	-6	-7	-7	-7	-8	-8	-6	-5	-7	-7	-9	

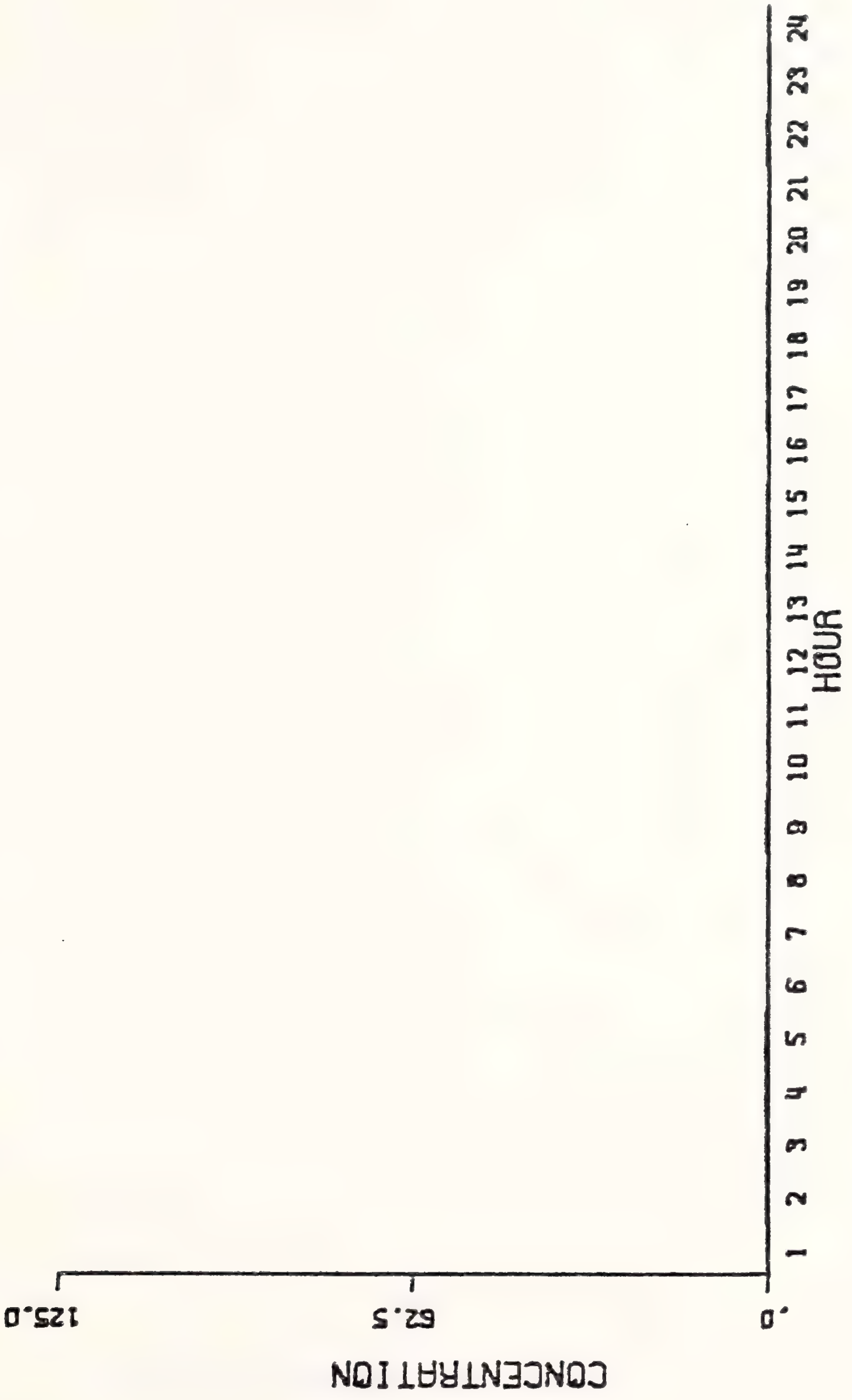
TOTAL NUMBER OF OBSERVATIONS = 6755 MEAN = -8.

: INDICATES CALIBRATION DURING THE HOUR

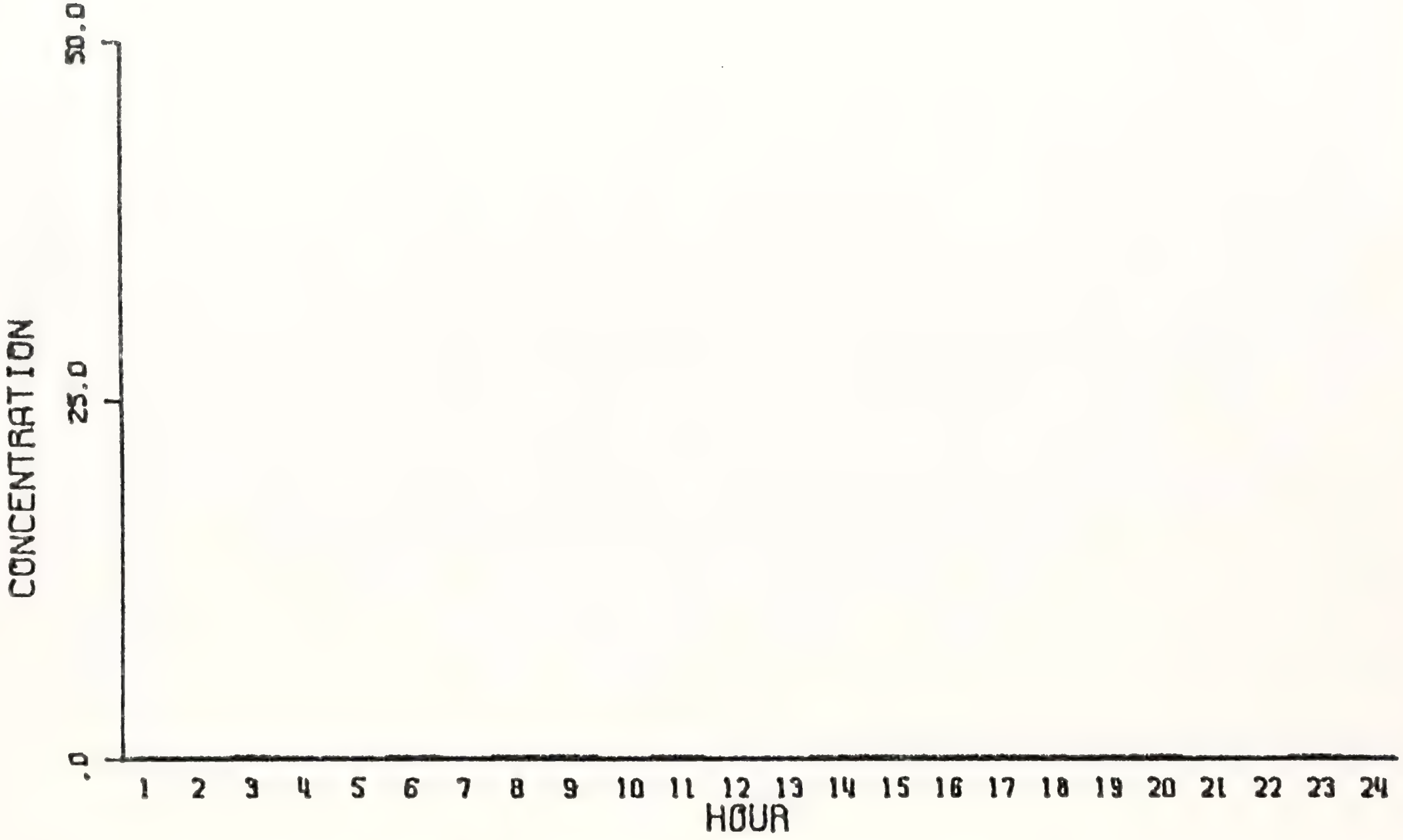
RADIAN
CORPORATION



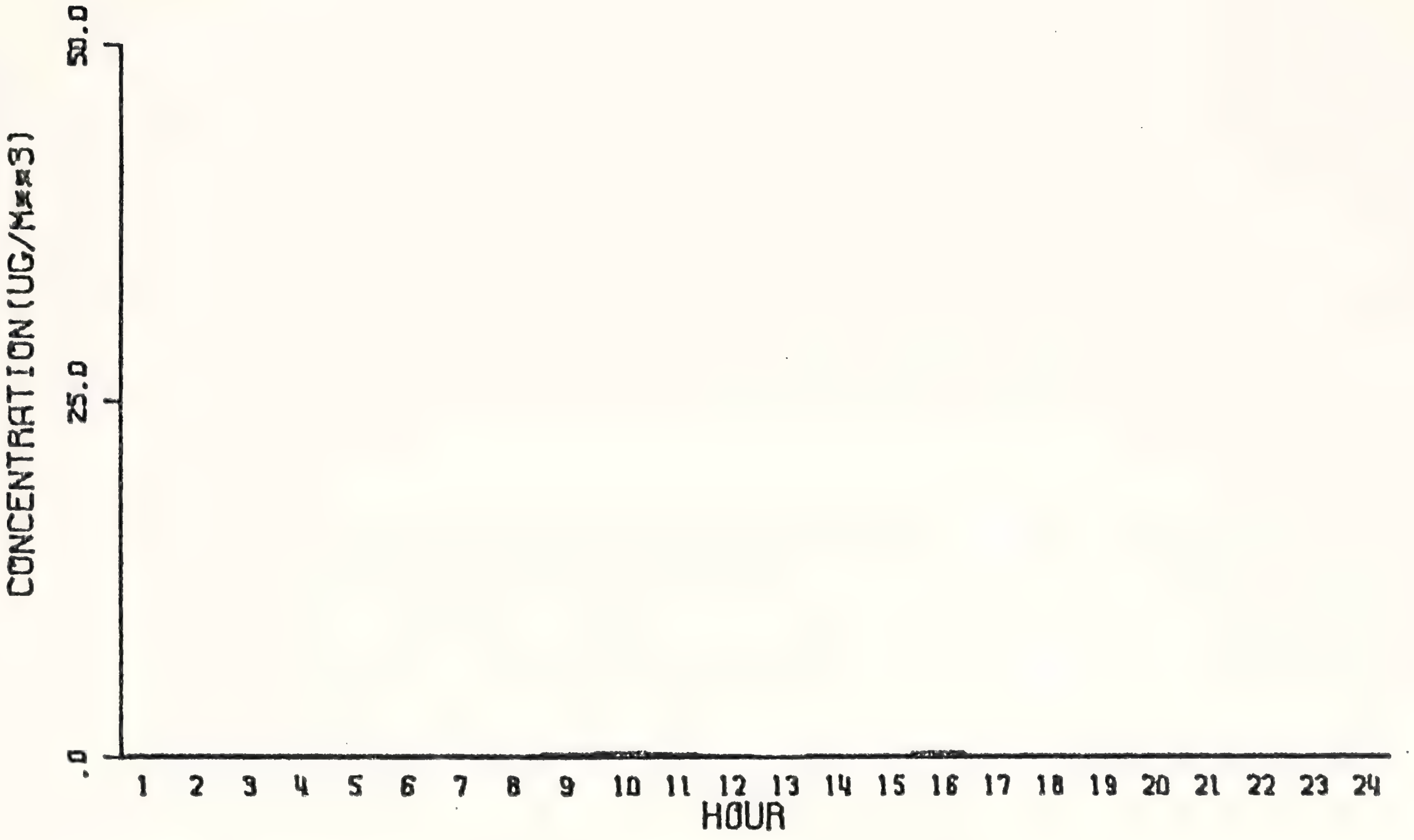
DIURNAL VARIATION OF NITROGEN OXIDES (UG/M**3)
SITE - 23



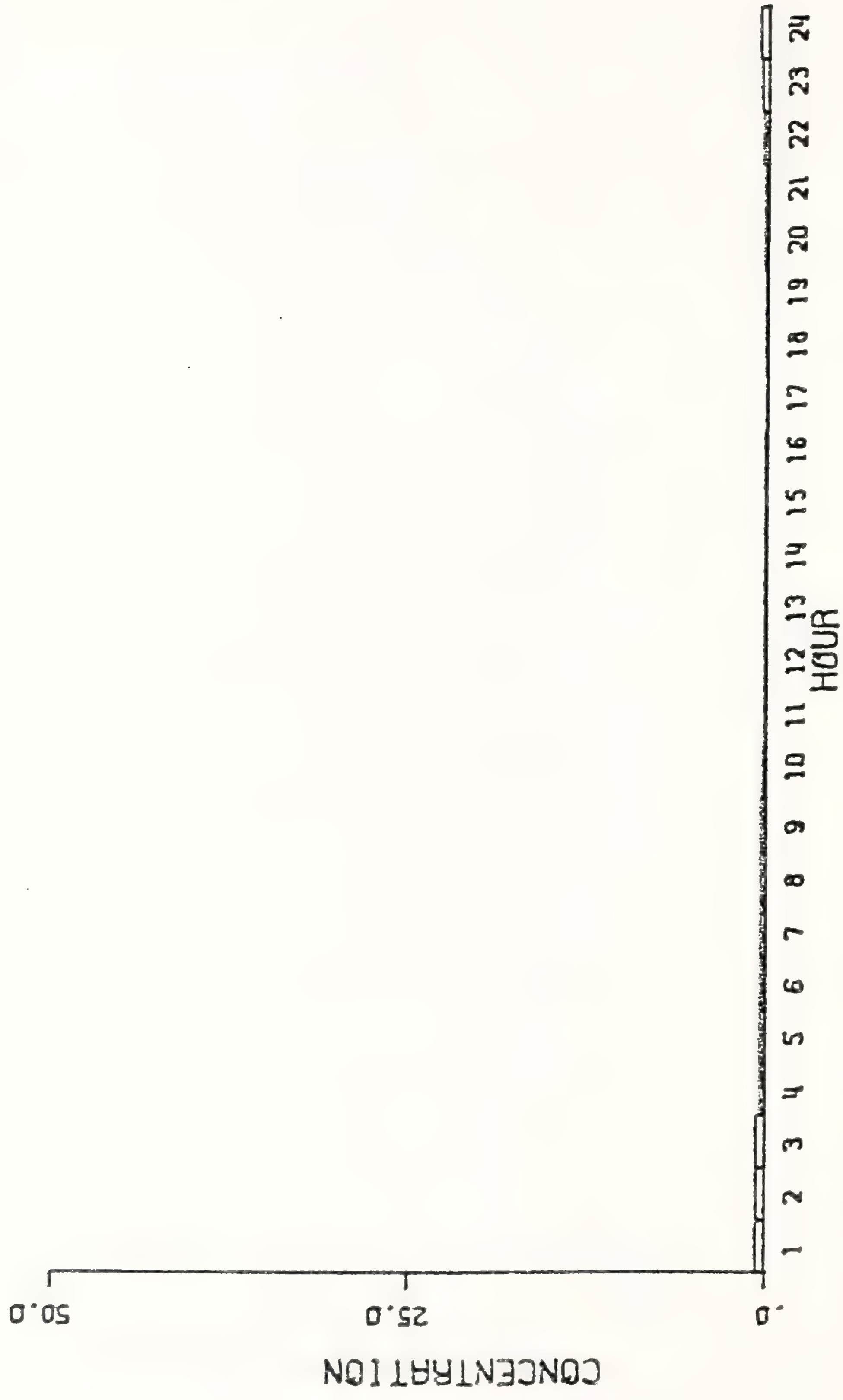
DIURNAL VARIATION OF NITRIC OXIDE (UG/M**3)
SITE - 23



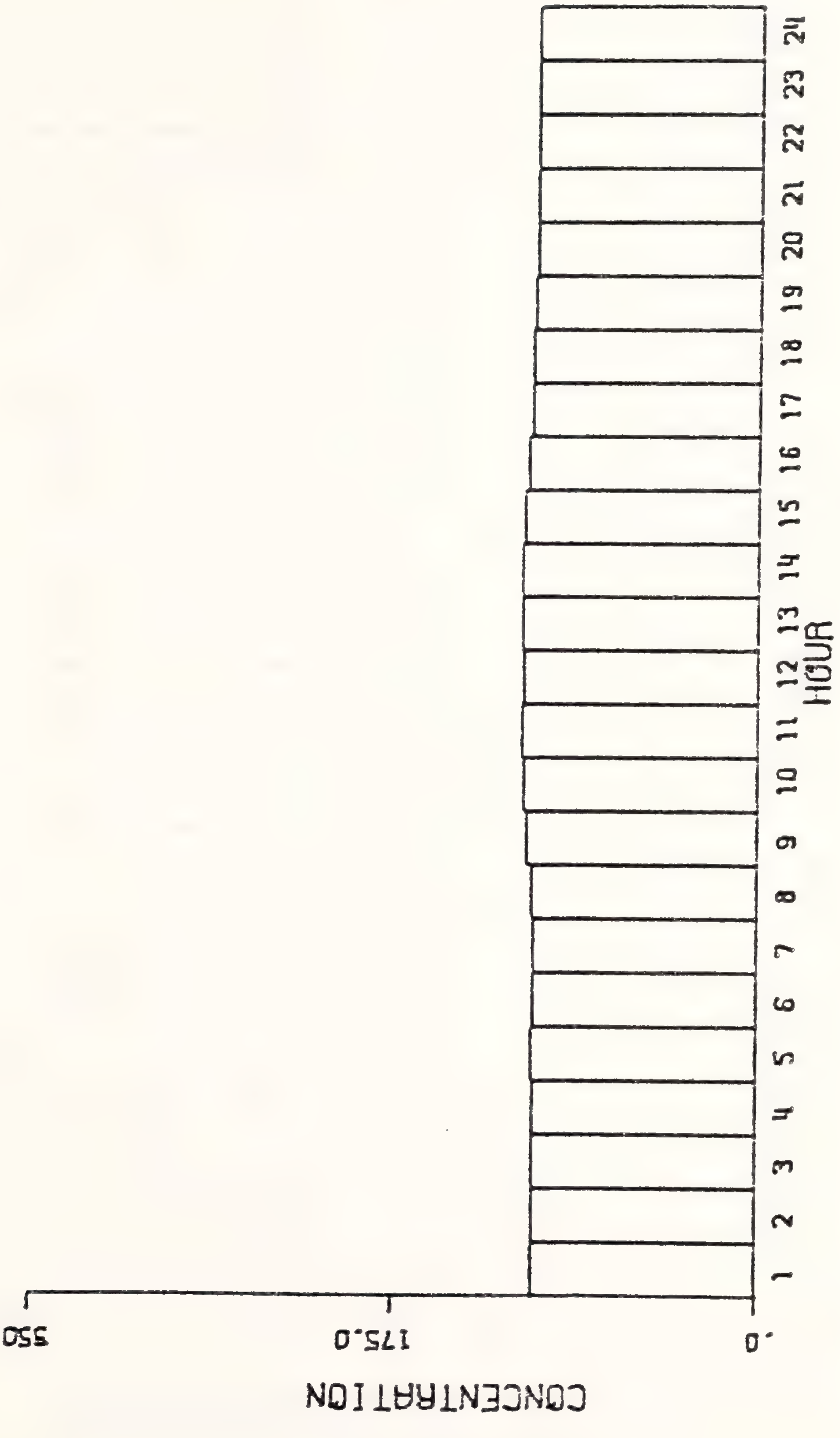
DIURNAL VARIATION OF NITROGEN DIOXIDE(UG/M**3)
SITE - 23



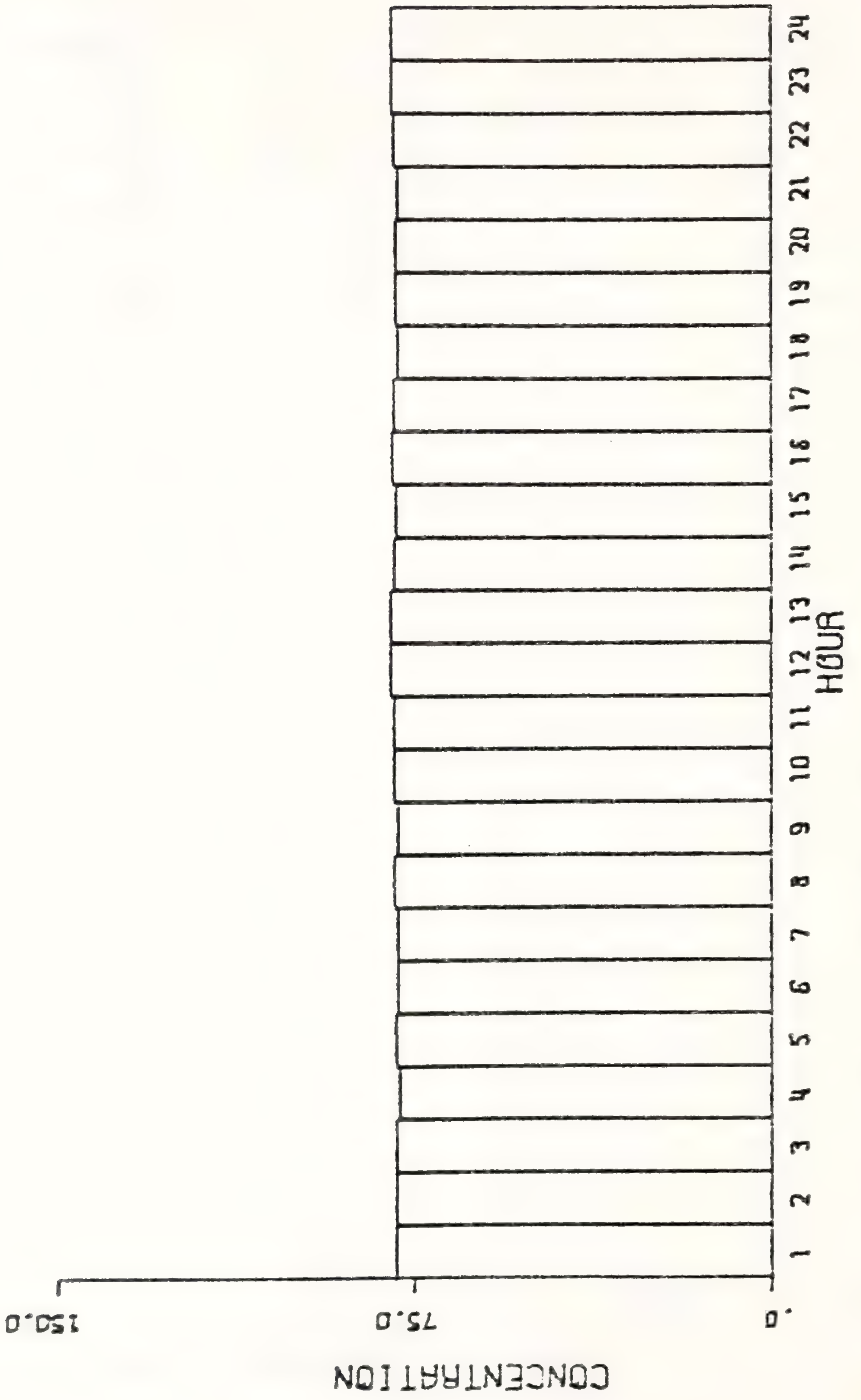
DIURNAL VARIATION OF SULFUR DIOXIDE (UG/M**3)
SITE - 23



DIURNAL VARIATION OF HYDROGEN SULFIDE (UG/M**3)
SITE - 23

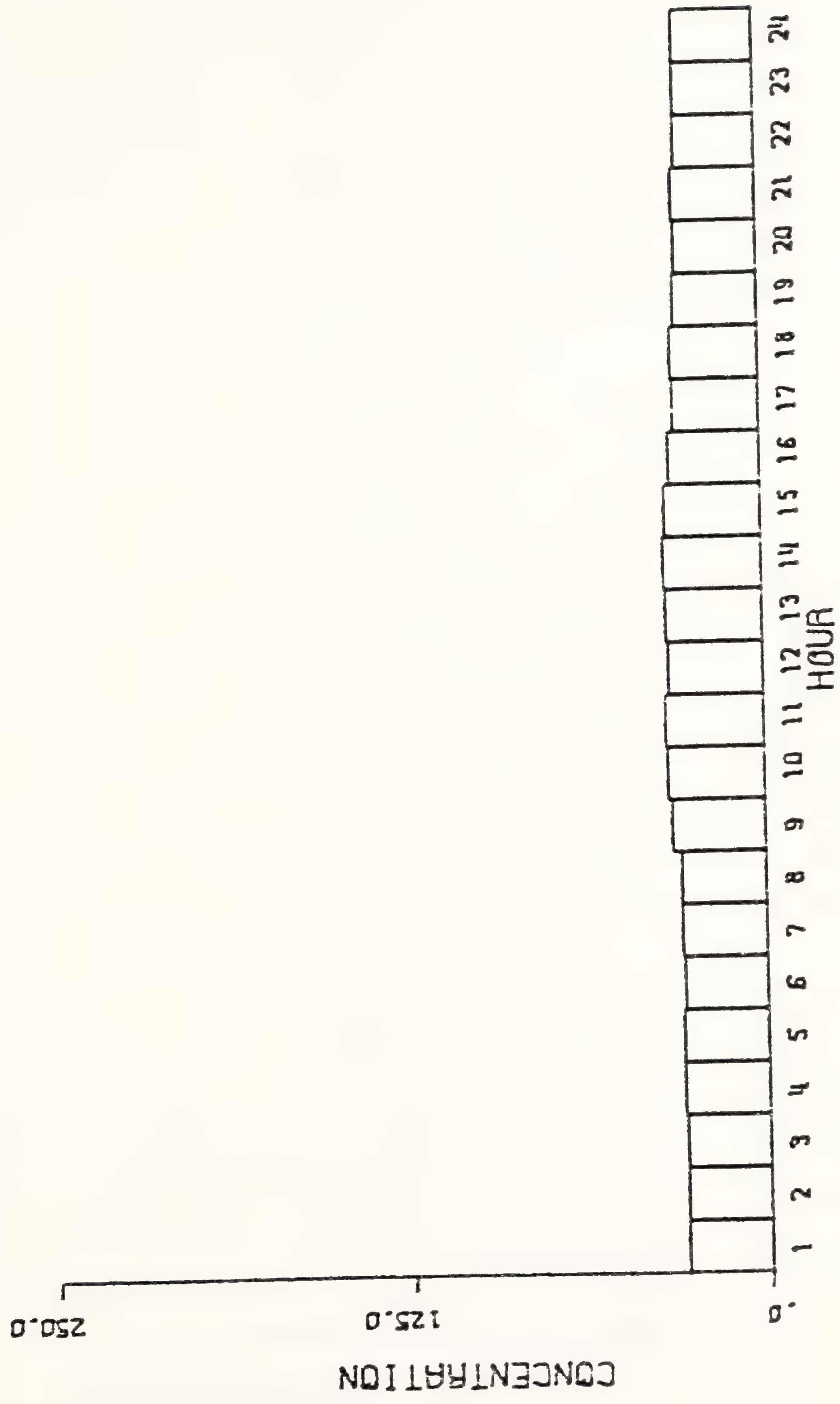


DIURNAL VARIATION OF TOTAL HYDROCARBONS(UG/M**3 X 10**-1)
SITE - 23

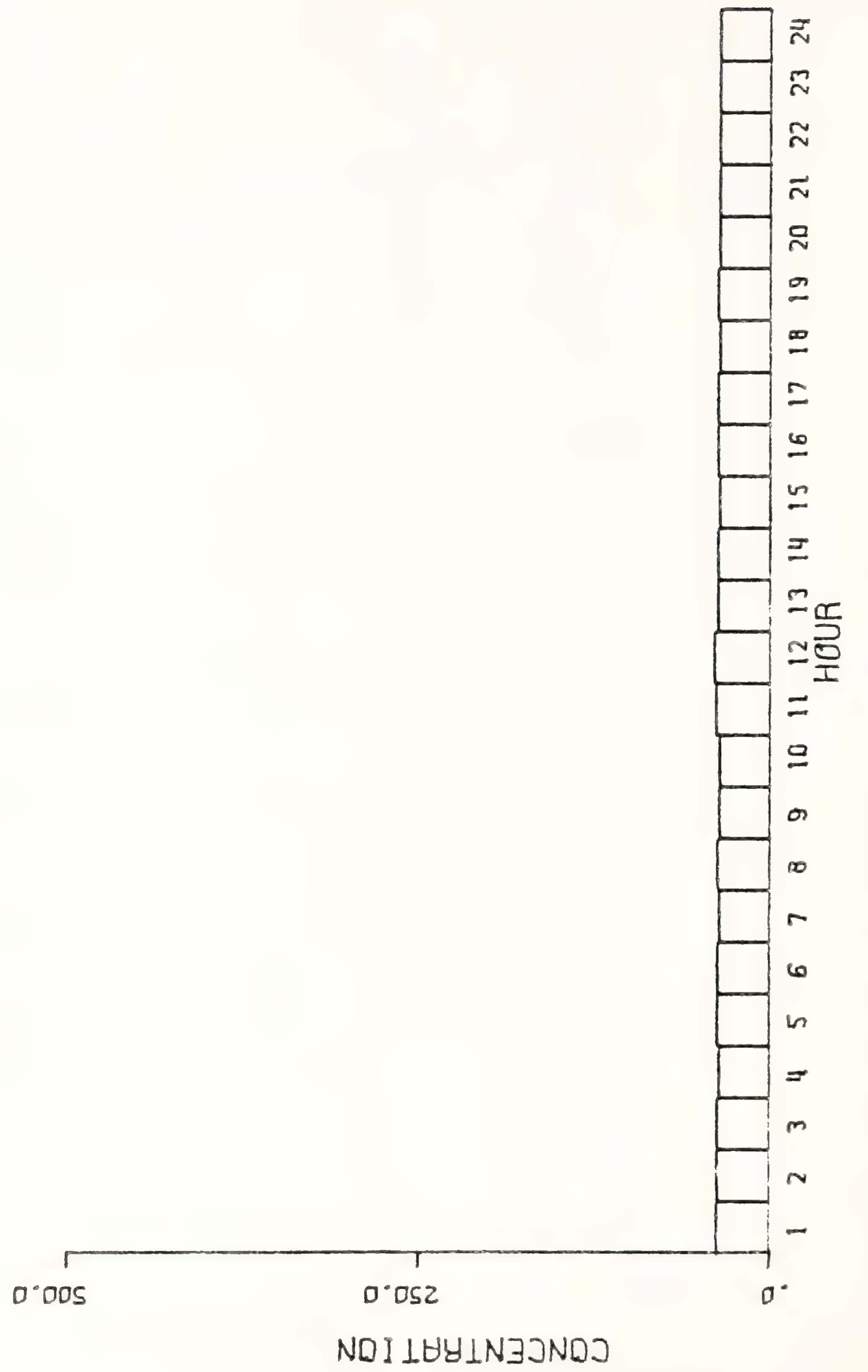


DIURNAL VARIATION OF METHANE(UG/M**3 X 10**-1)
SITE - 23

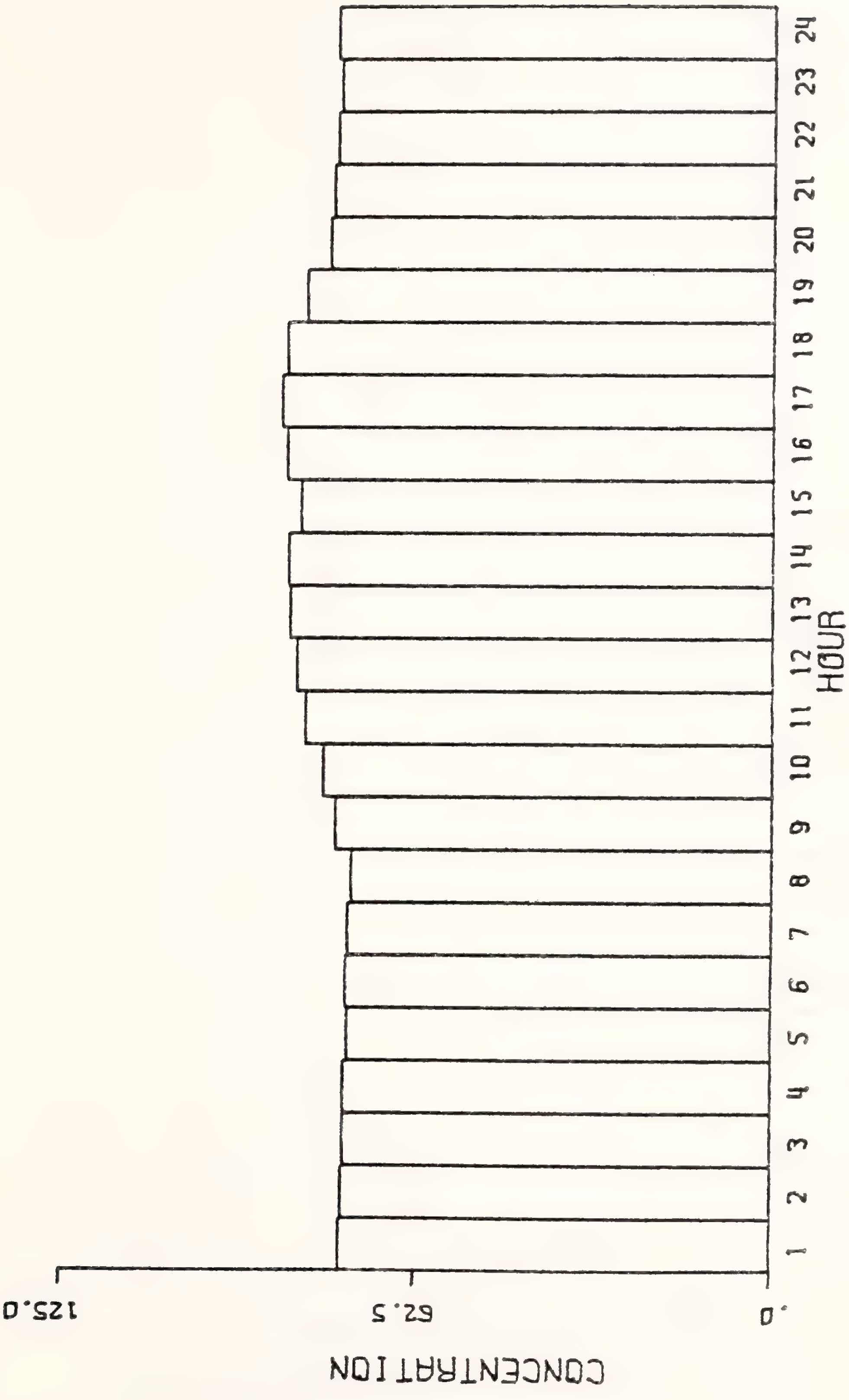
RADIAN CORPORATION



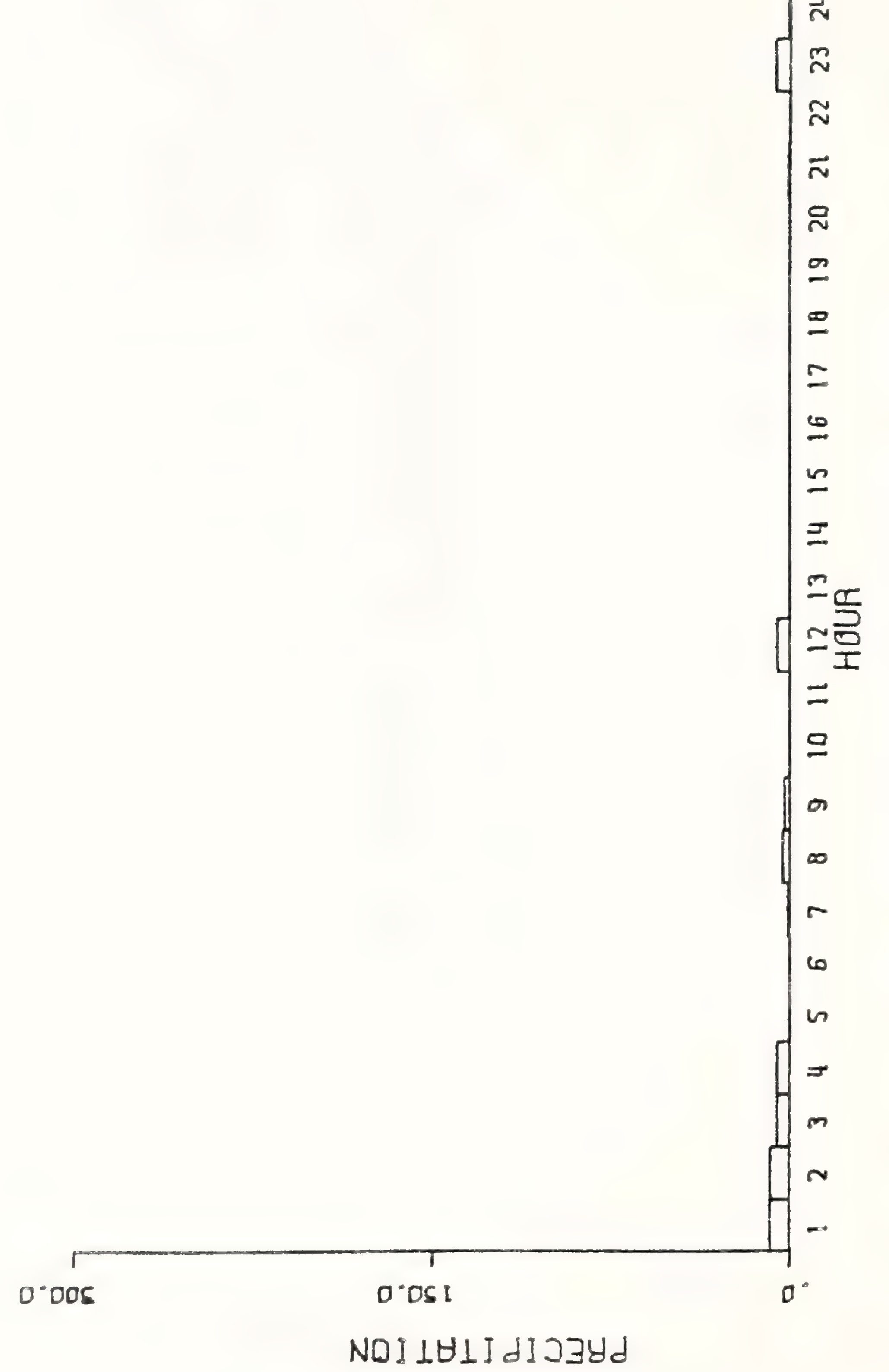
DIURNAL VARIATION OF NON-METHANE HYDROCARBONS(UG/M**3 X 10**-1)
SITE - 23



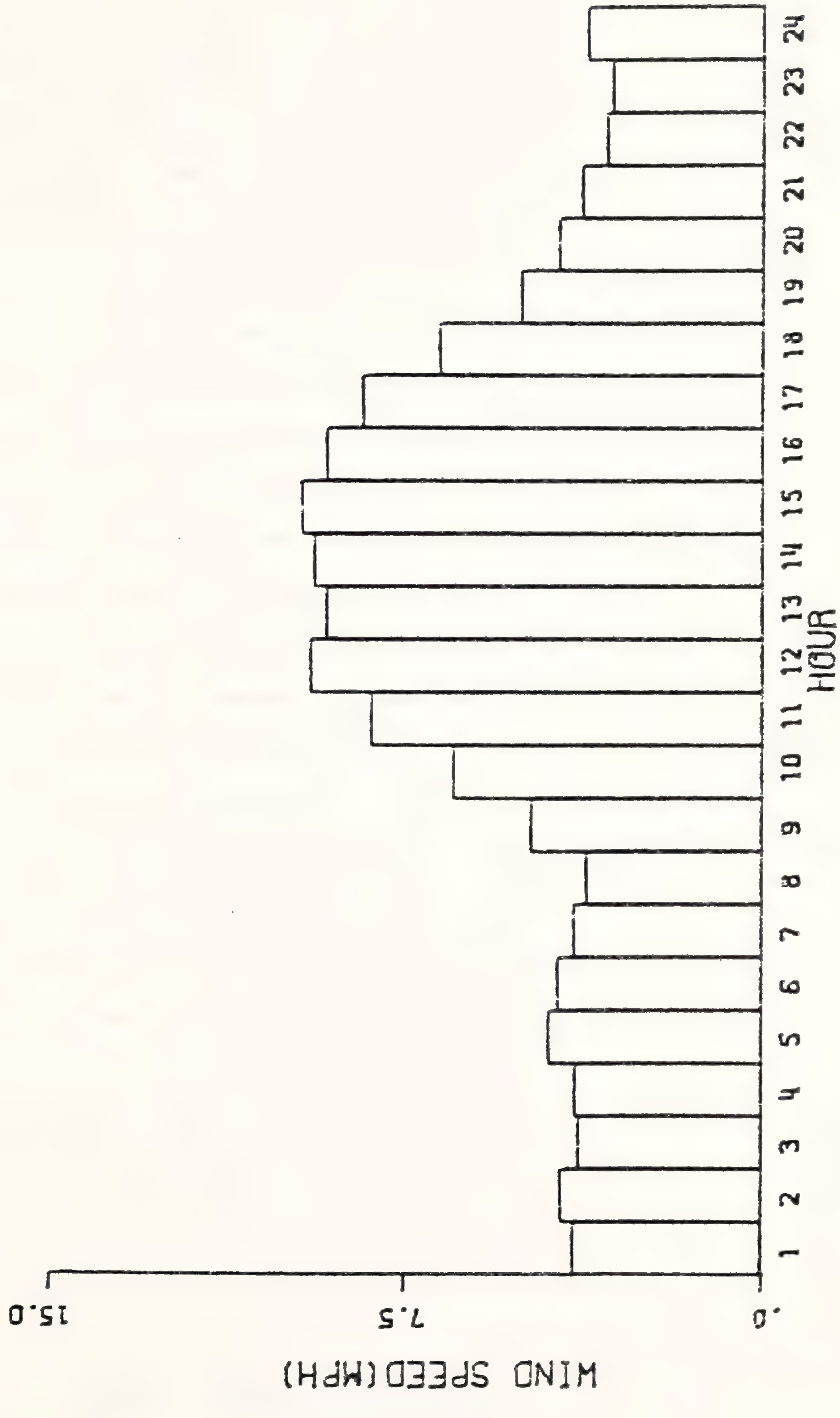
DIURNAL VARIATION OF CARBON MONOXIDE (UG/M**3 X 10**-1)
SITE - 23



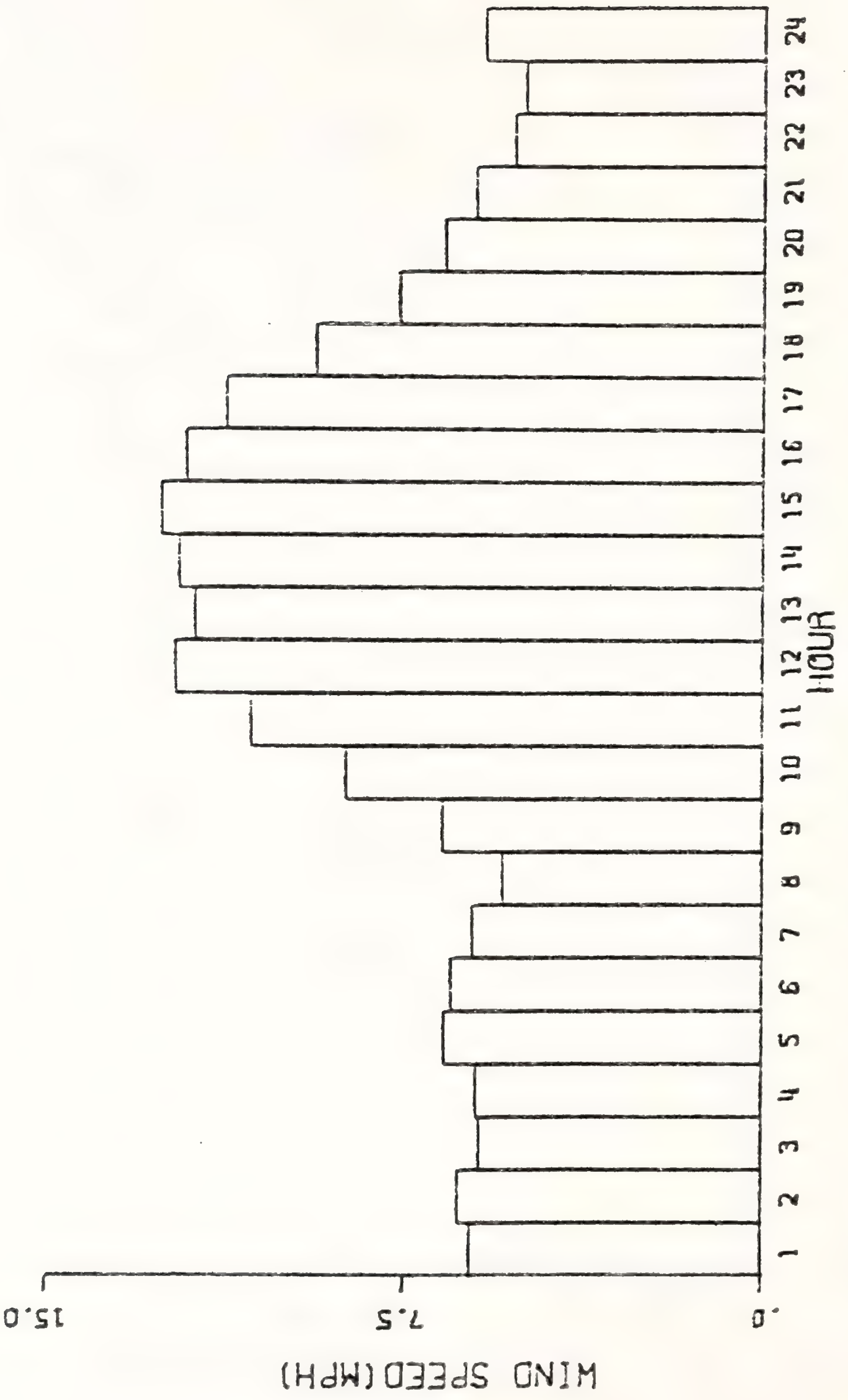
DIURNAL VARIATION OF OZONE (UG/M**3)
SITE - 23



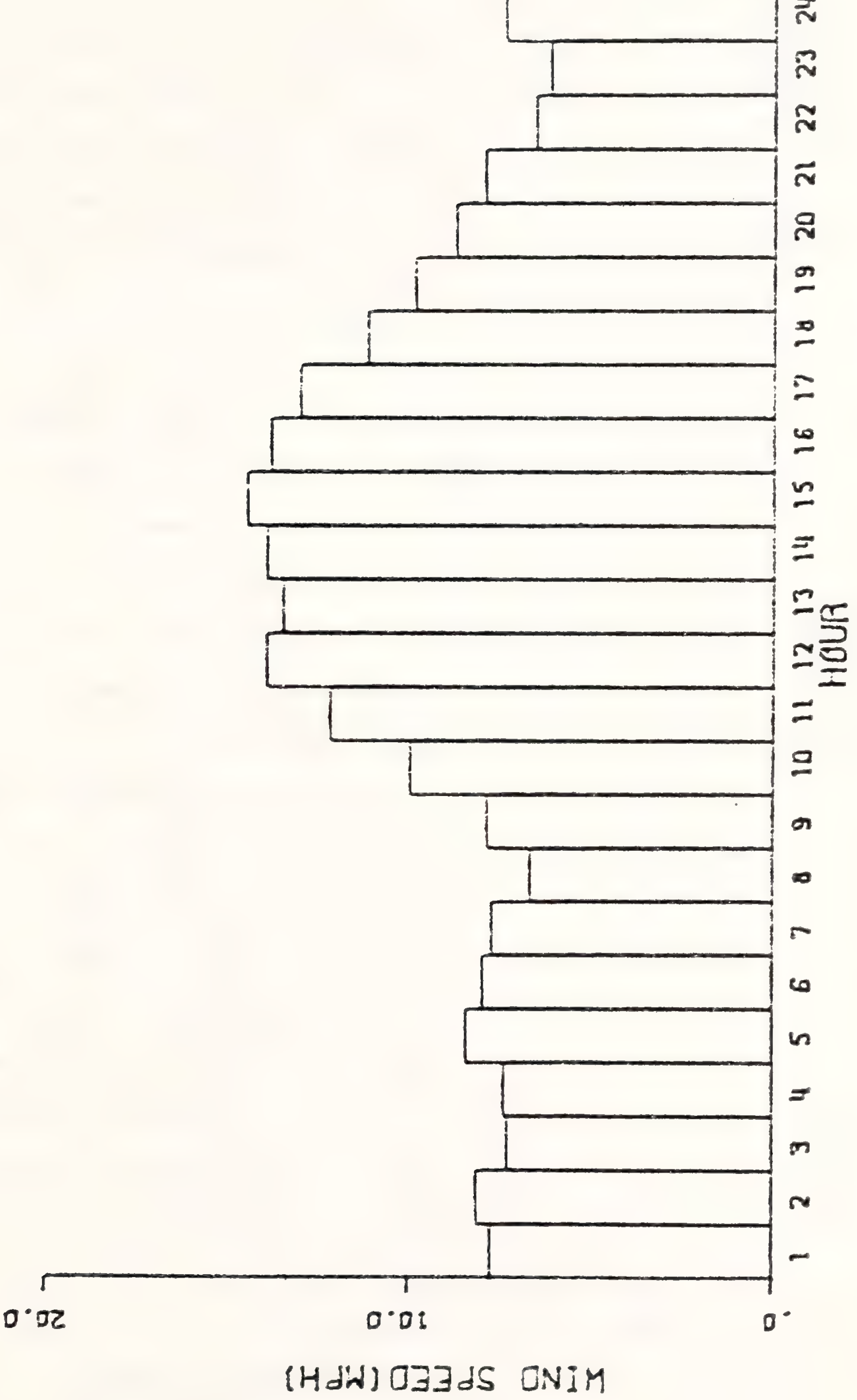
HOURLY TOTAL PRECIPITATION (HUNDREDTHS OF INCHES)
SITE - 23



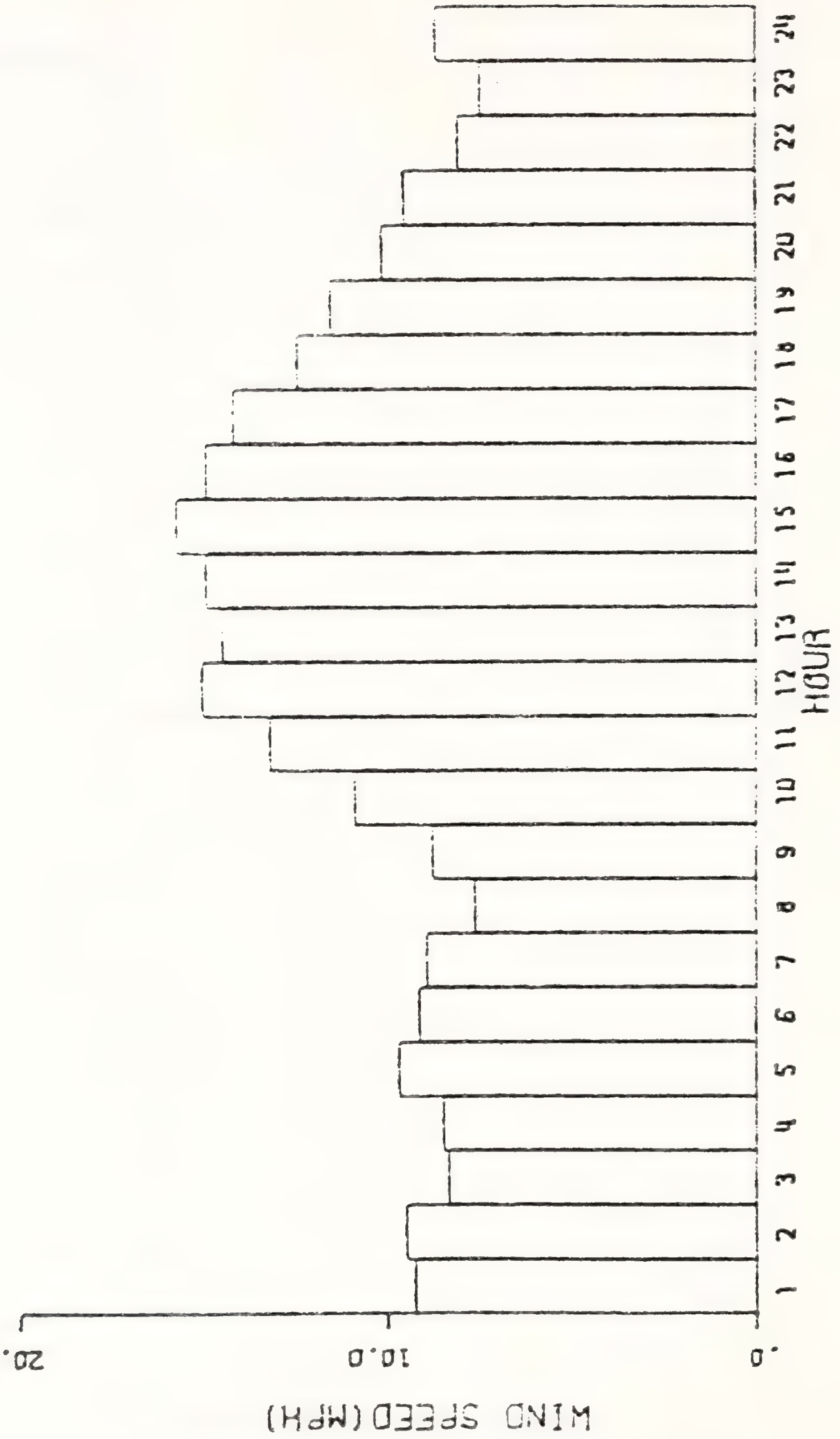
DIURNAL VARIATION OF WIND SPEED AT 8 FEET(MPH)
SITE - 23



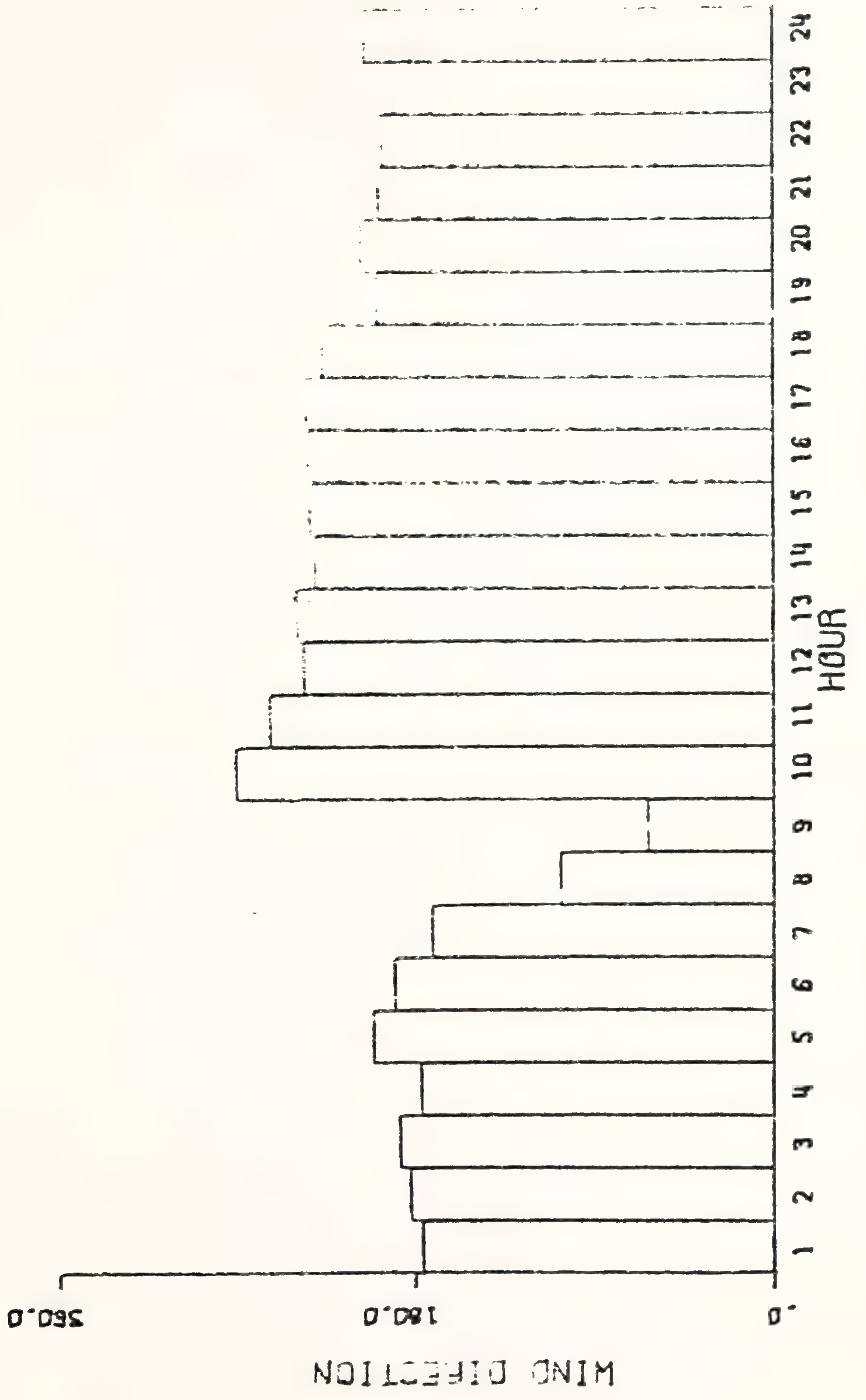
DIURNAL VARIATION OF WIND SPEED AT 30 FEET (MPH)
SITE - 23



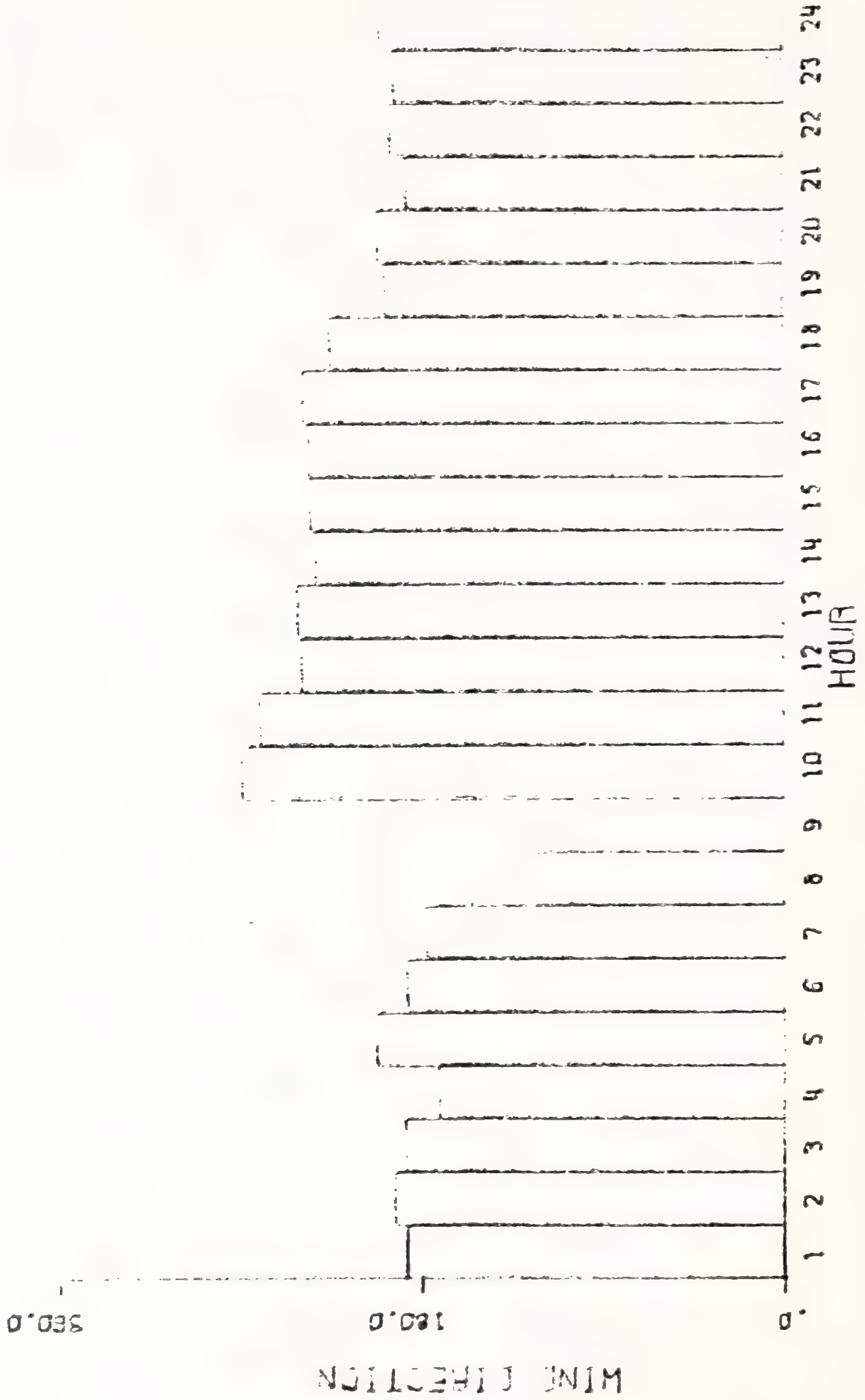
DIURNAL VARIATION OF WIND SPEED AT 100 FEET (MPH)
SITE - 23



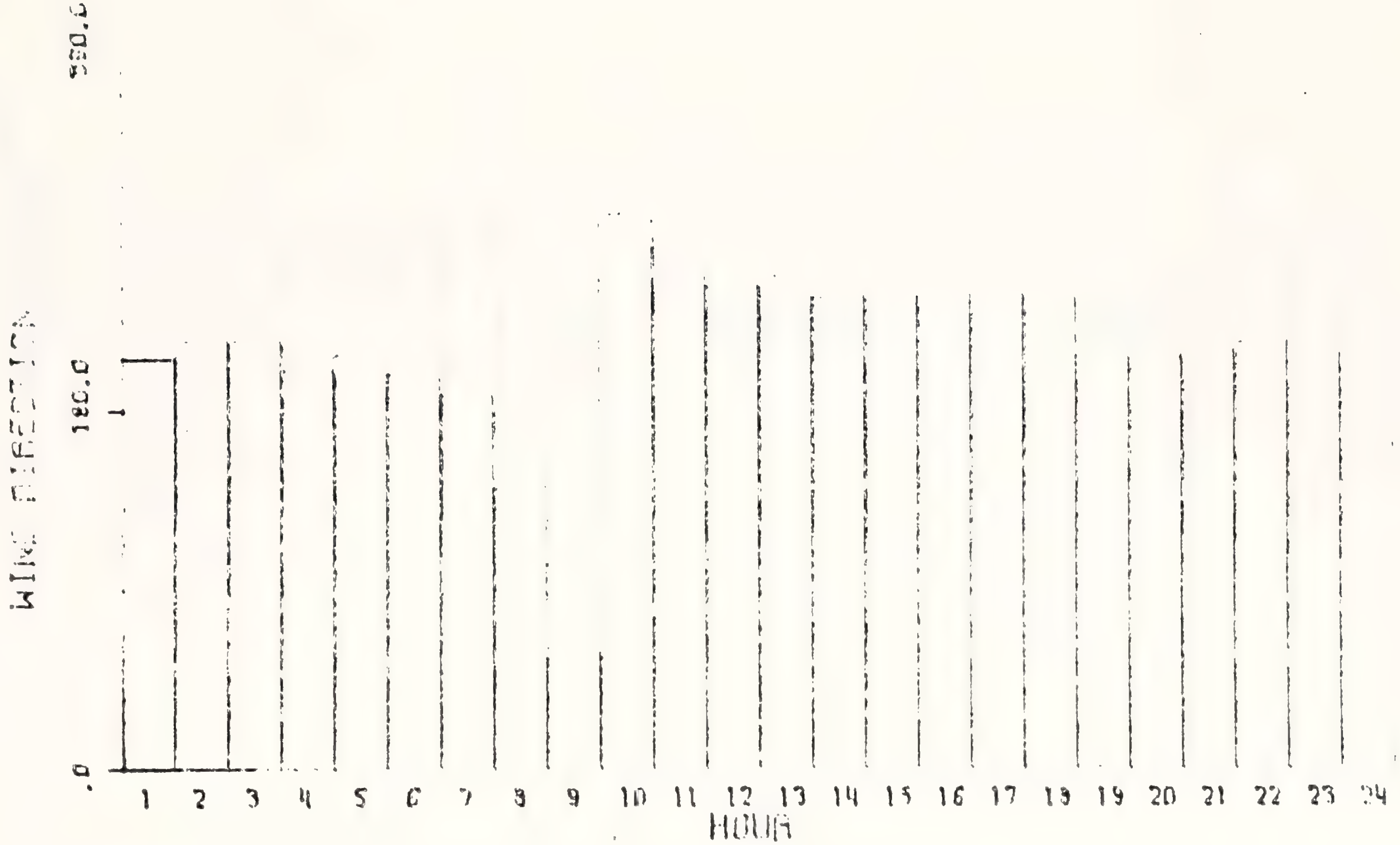
DIURNAL VARIATION OF WIND SPEED AT 200 FEET (MPH)
SITE - 23



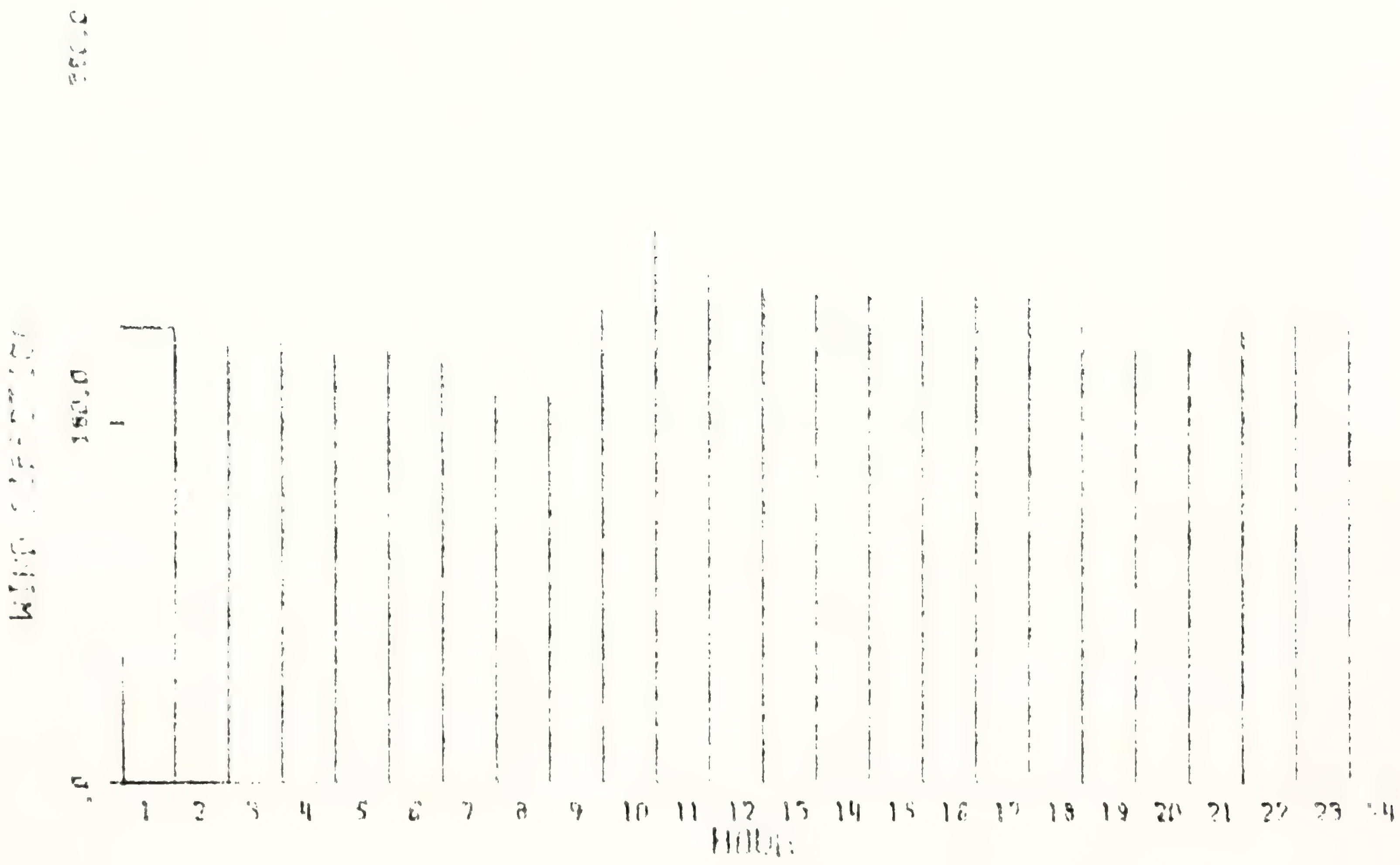
DIURNAL VARIATION OF WIND DIRECTION AT 9 FEET
SITE - 23



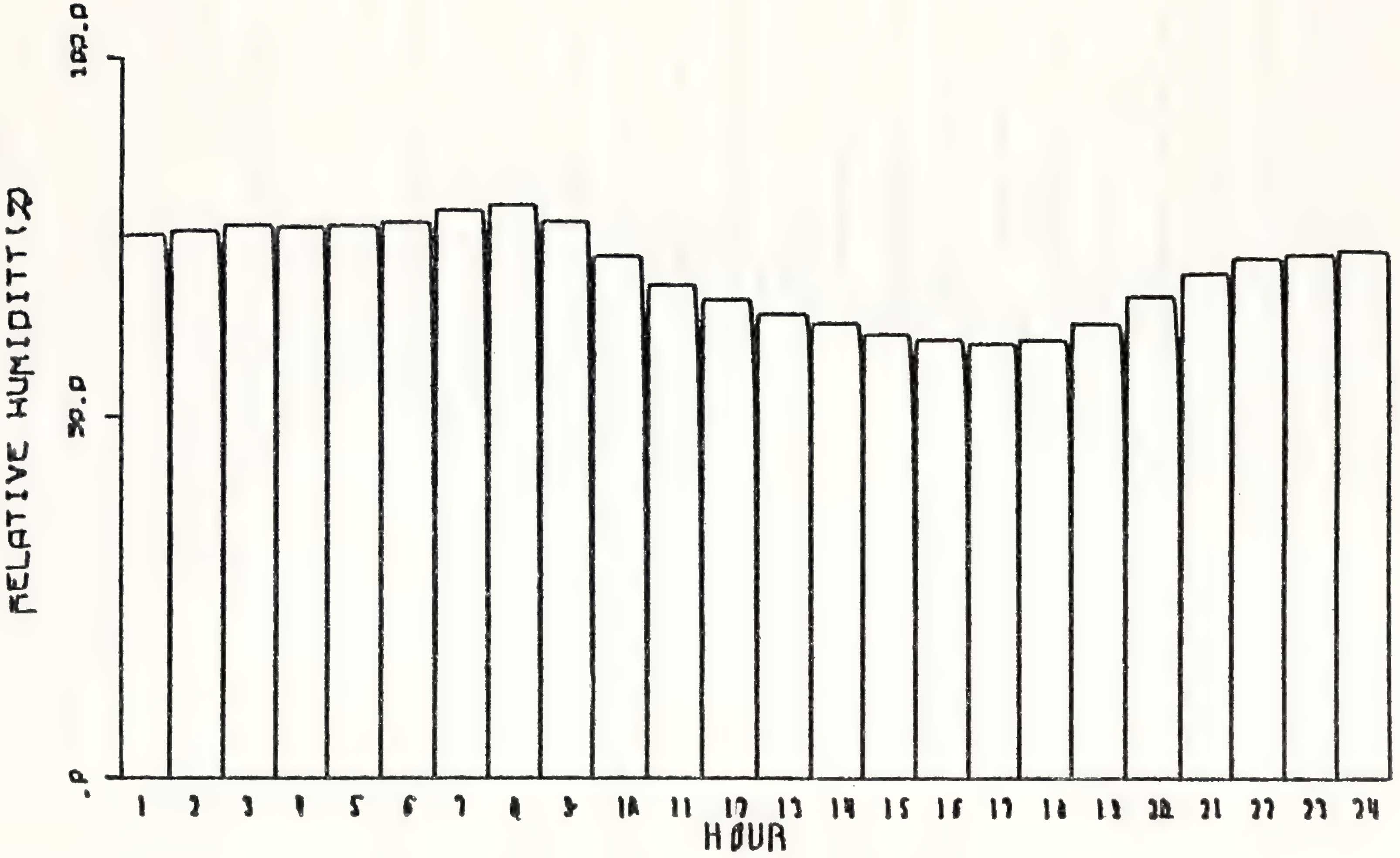
DIURNAL VARIATION OF WIND DIRECTION AT 30 FEET
SITE - 23



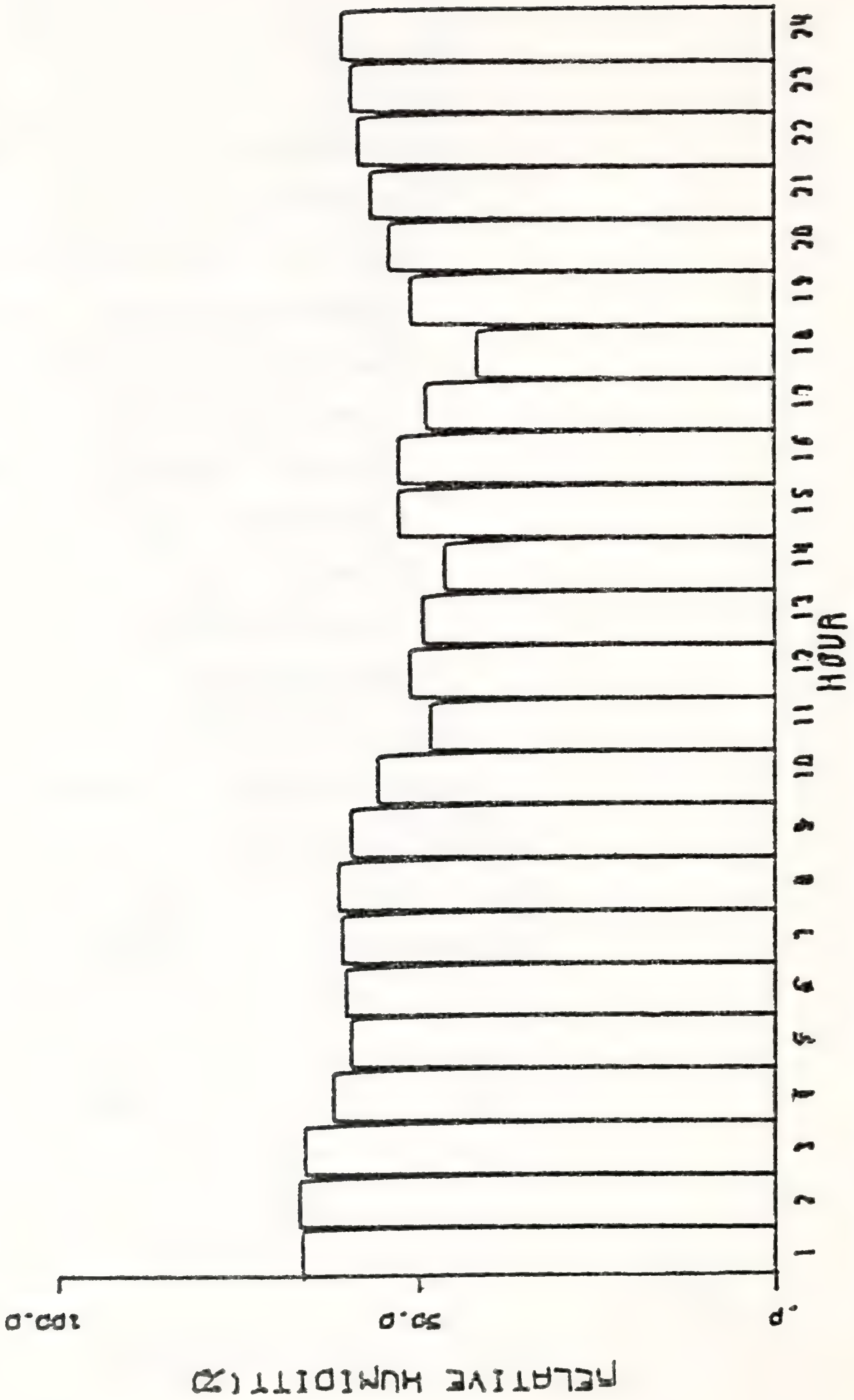
DIURNAL VARIATION OF WIND DIRECTION AT 100 FEET
SITE - 23



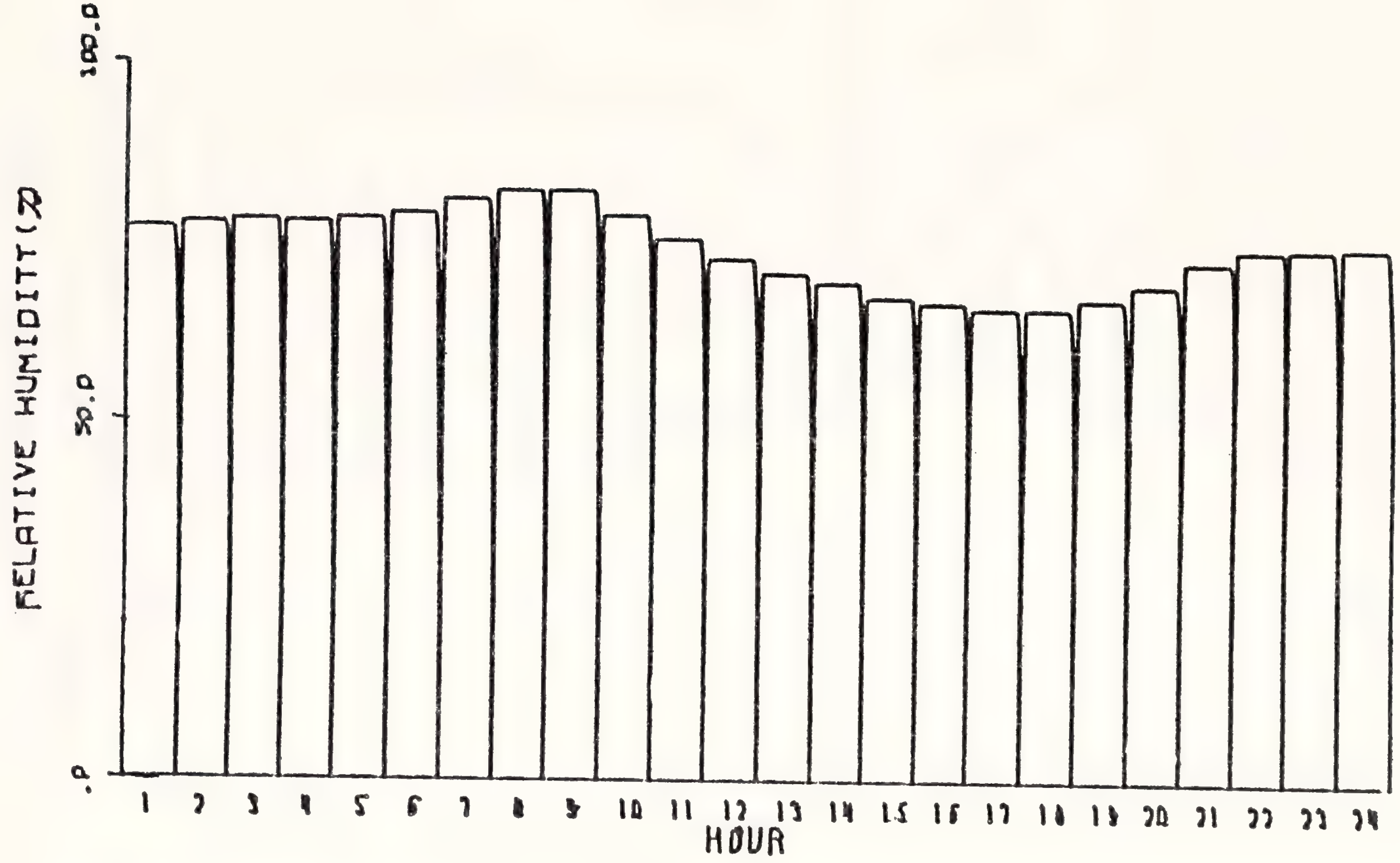
DIURNAL VARIATION OF WIND DIRECTION AT 200 FEET
SITE - 23



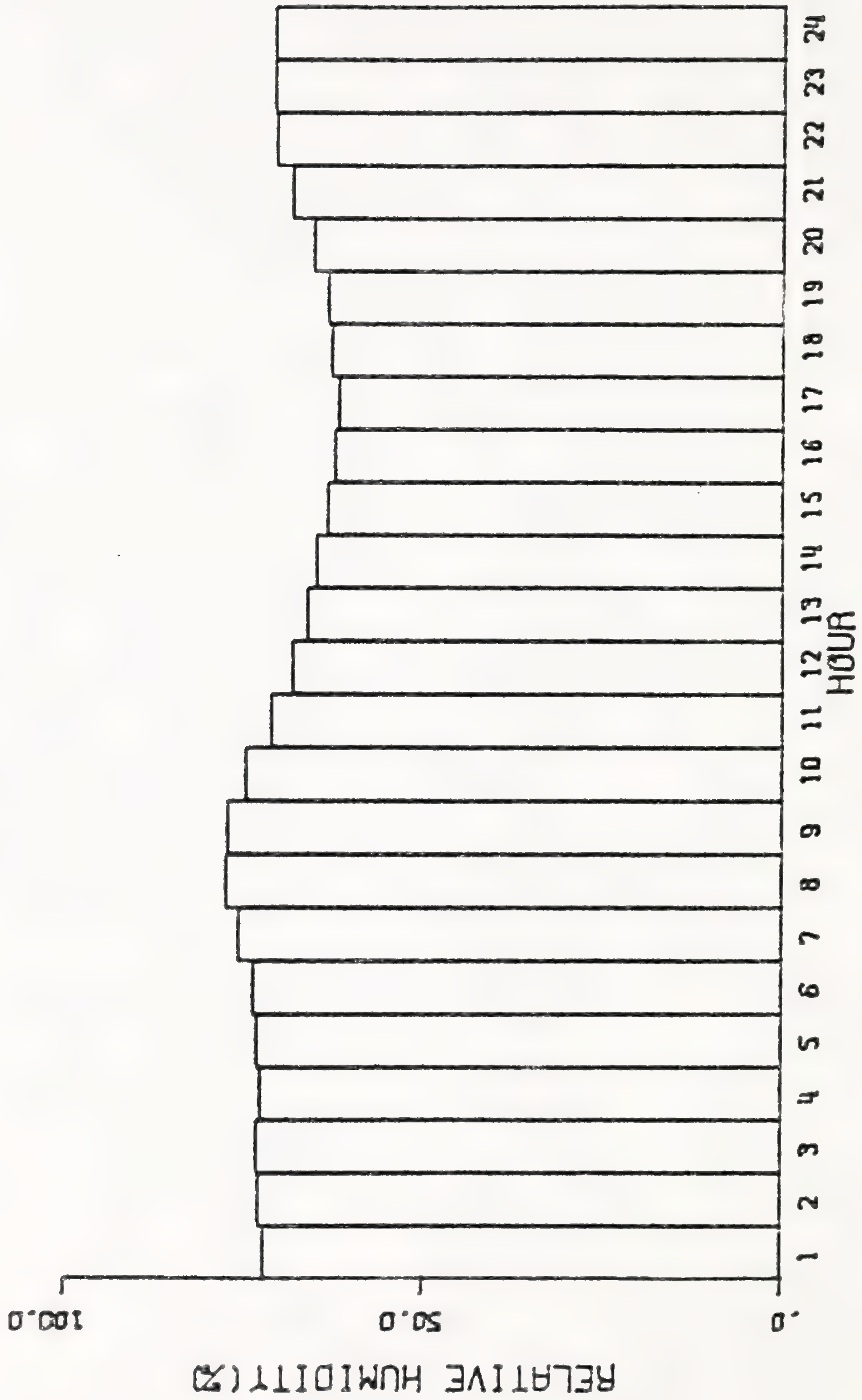
DIURNAL VARIATION OF RELATIVE HUMIDITY AT 8 FEET
SITE - 23



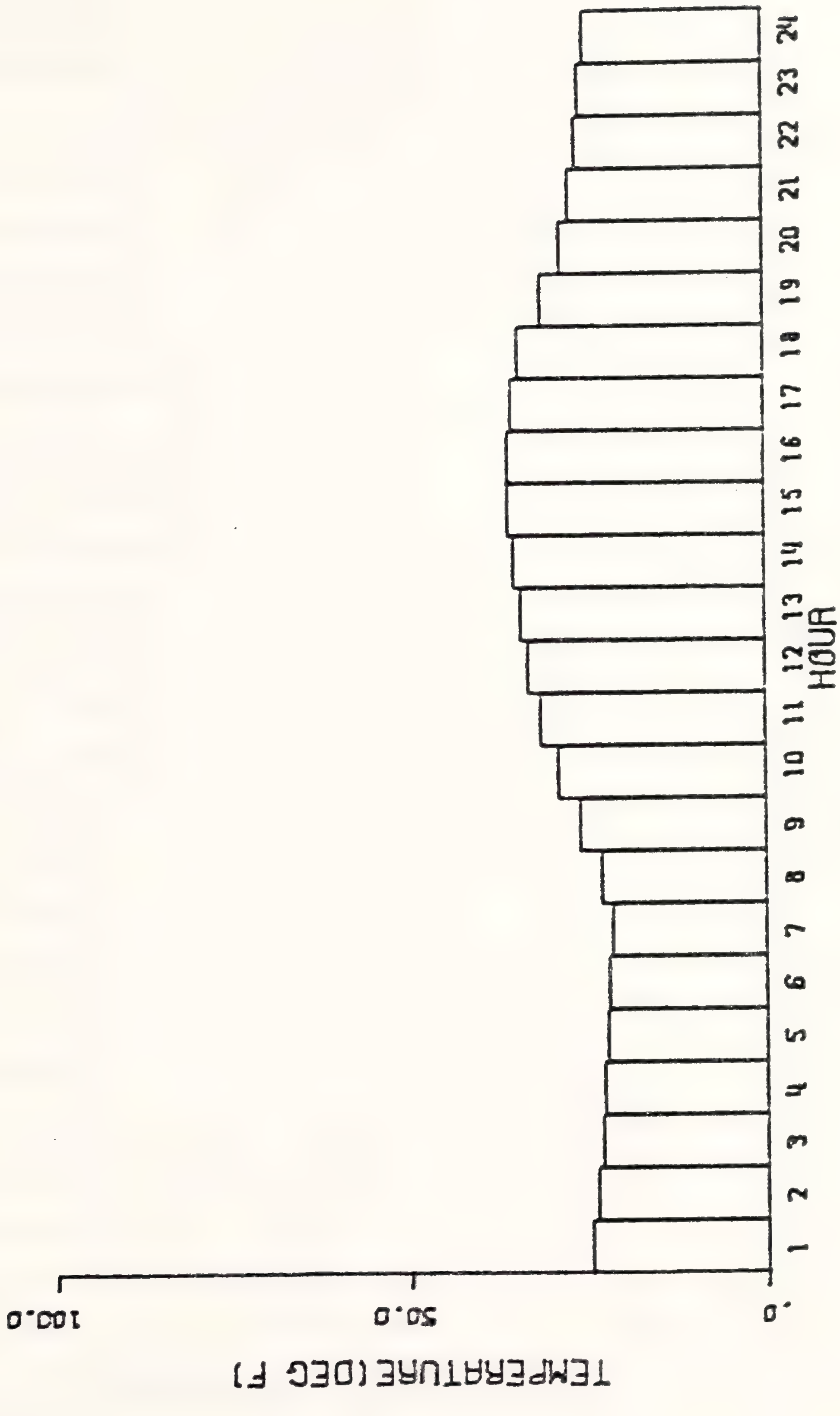
DIURNAL VARIATION OF RELATIVE HUMIDITY AT 30 FEET
SMC - 21



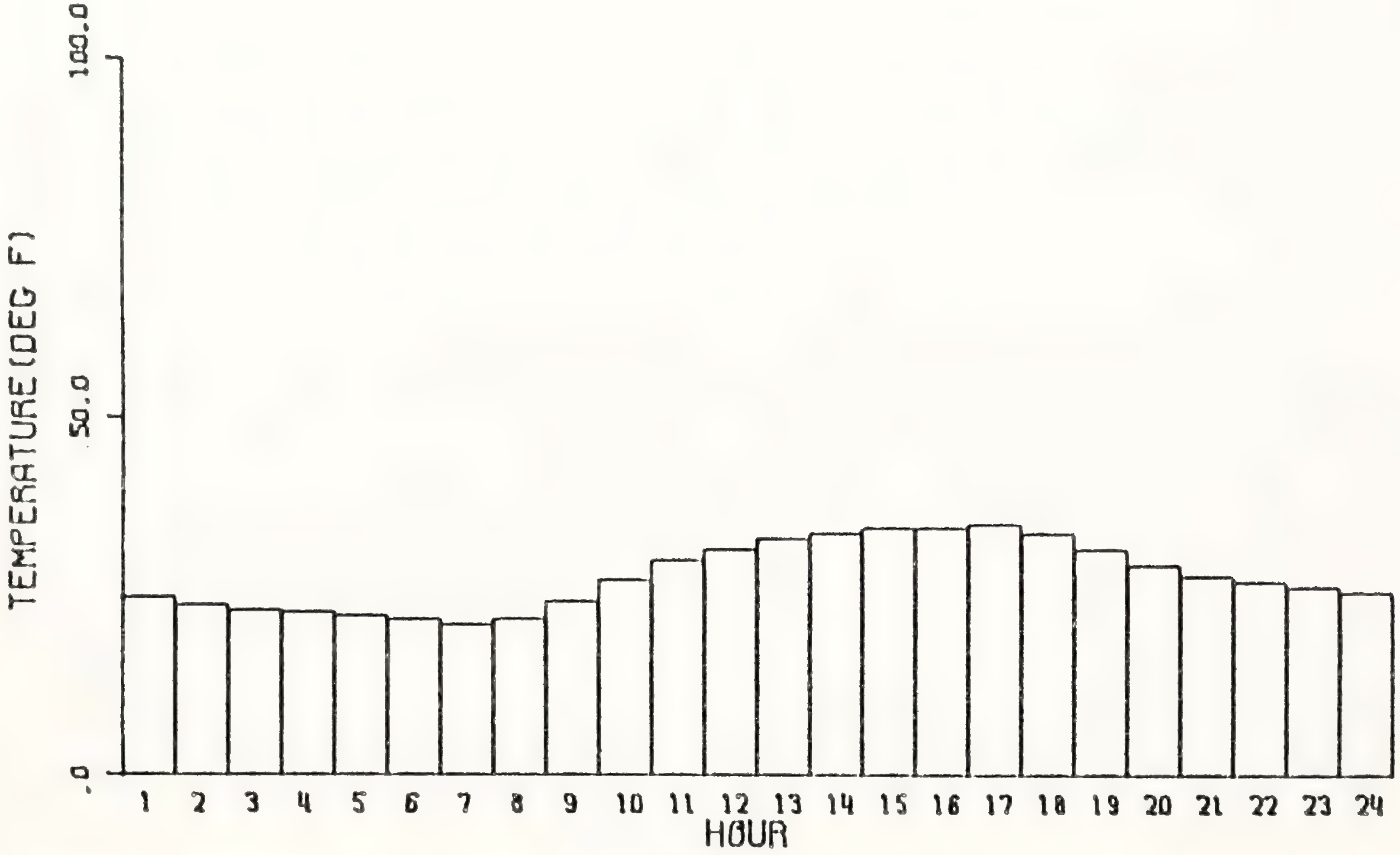
DIURNAL VARIATION OF RELATIVE HUMIDITY AT 100 FEET
SITE - 23



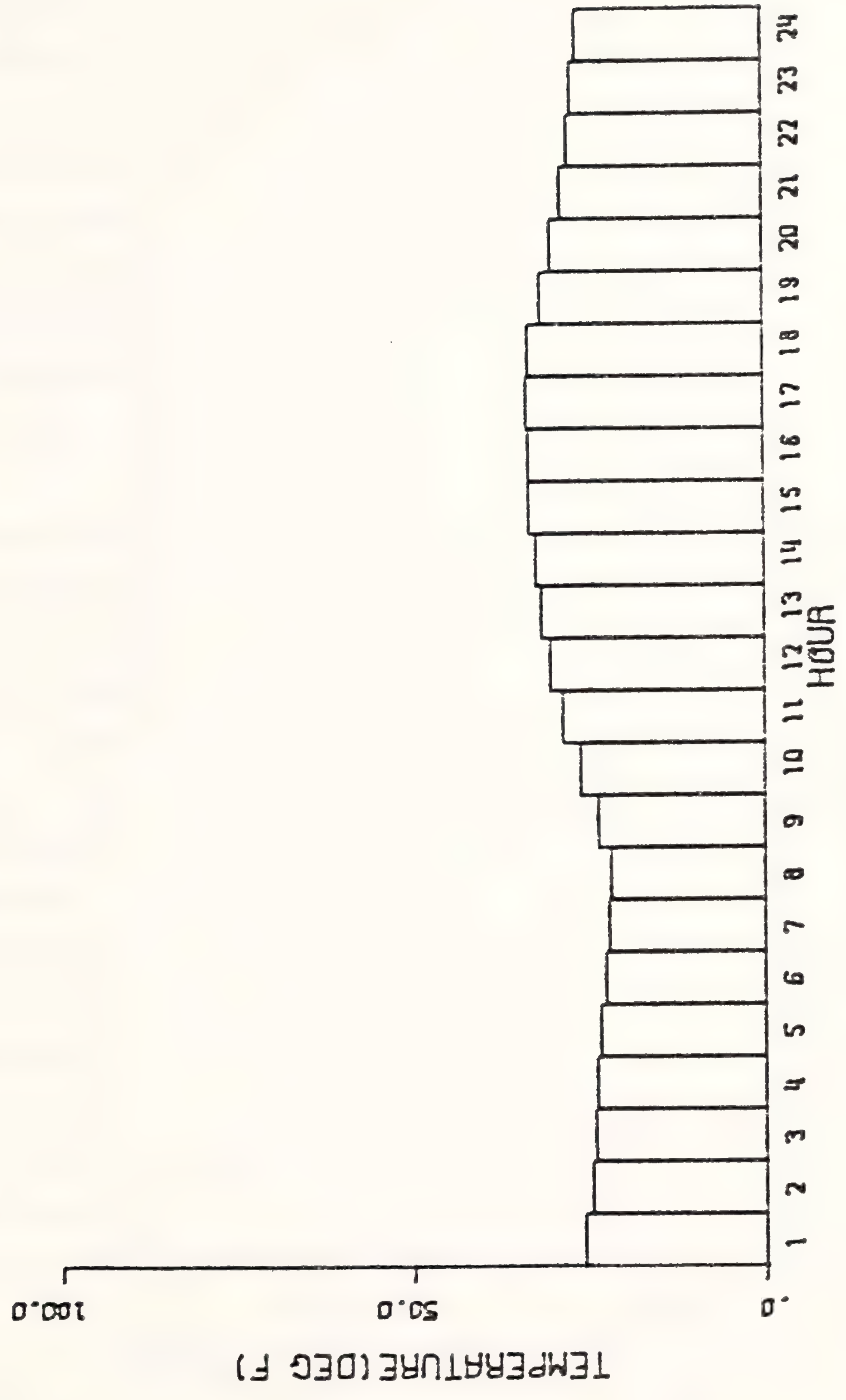
DIURNAL VARAITON OF RELATIVE HUMIDITY AT 200 FEET
SITE - 23



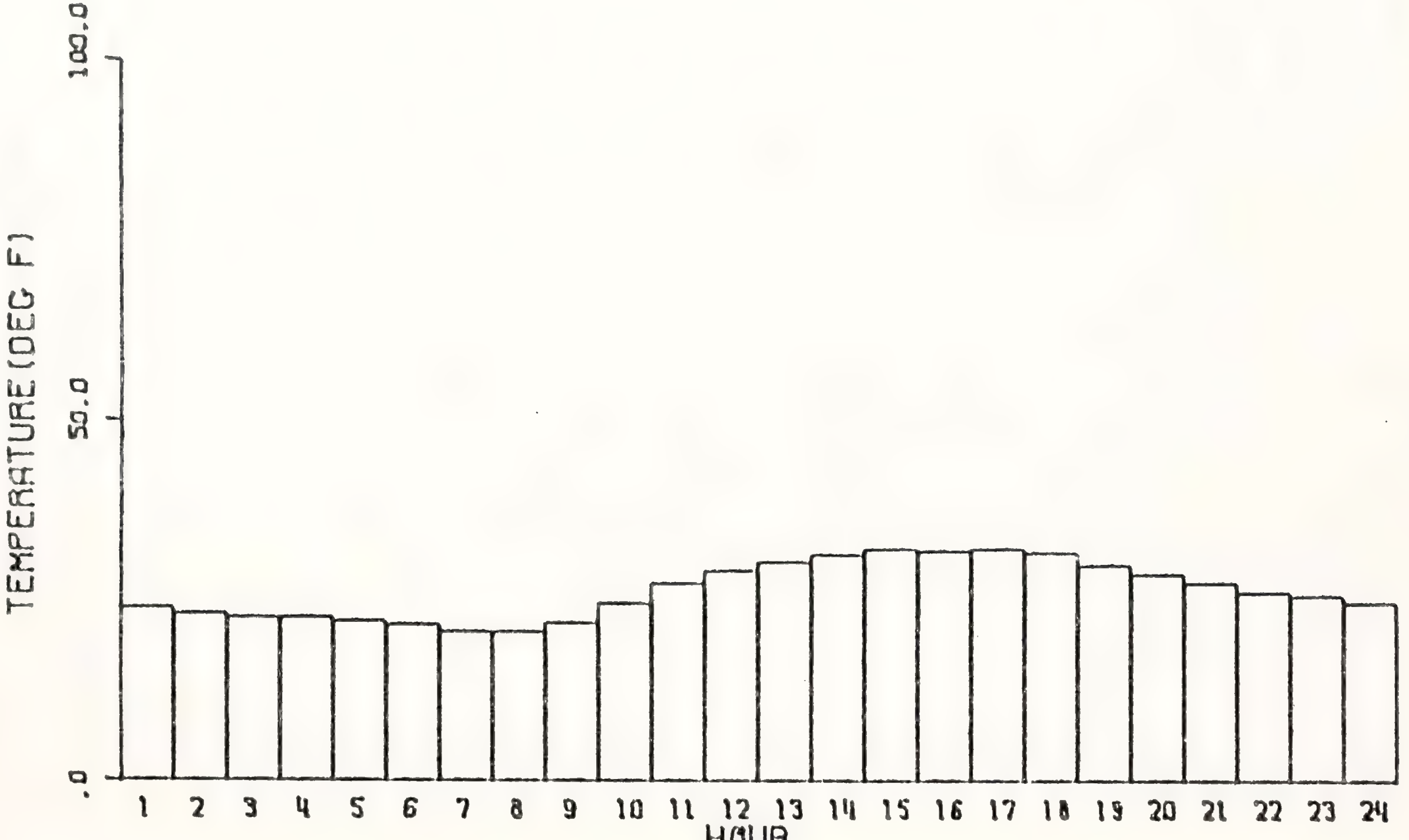
DIURNAL VARIATION OF TEMPERATURE AT 8 FEET(DEG F)
SITE - 23



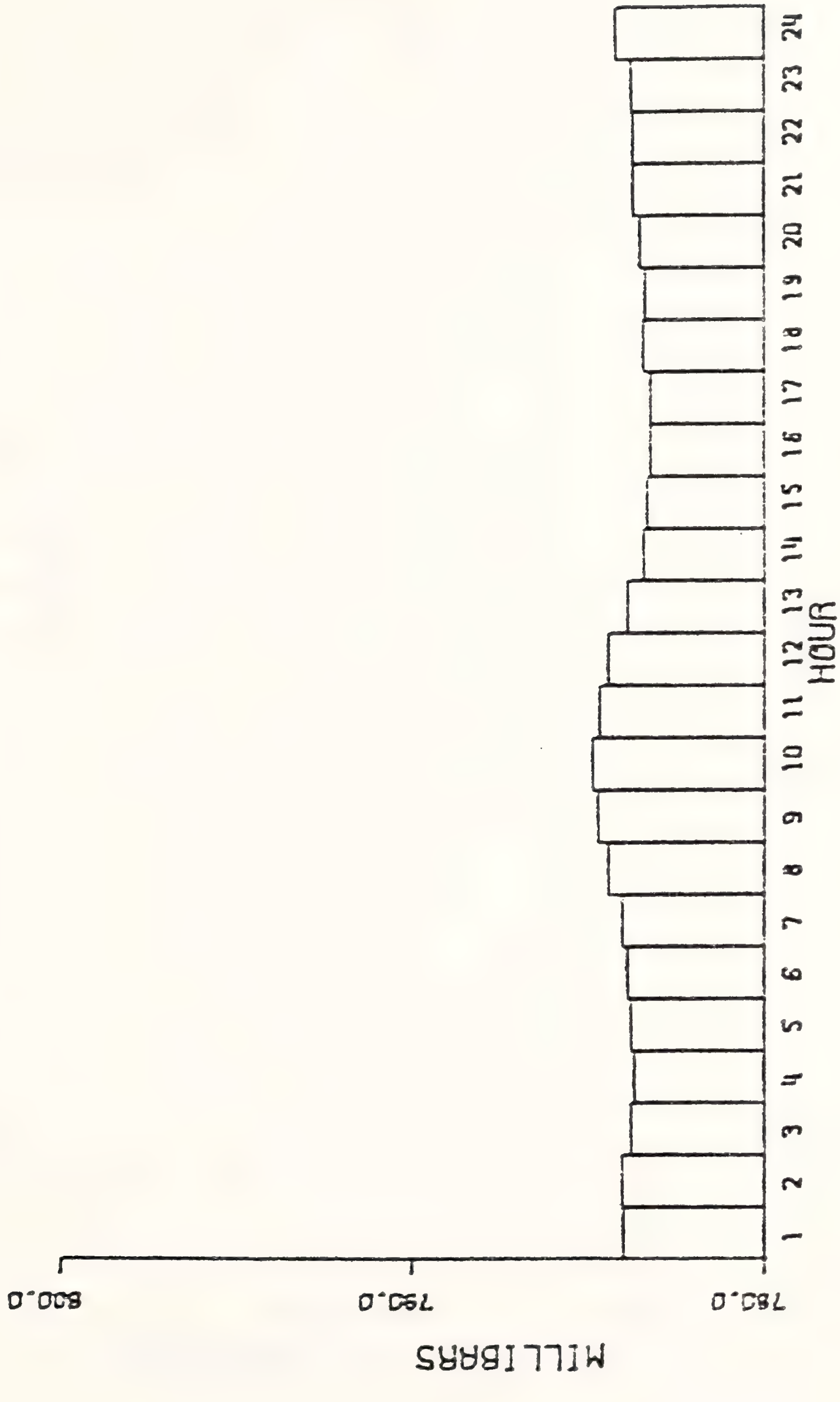
DIURNAL VARIATION OF TEMPERATURE AT 30 FEET(DEG F)
SITE - 23



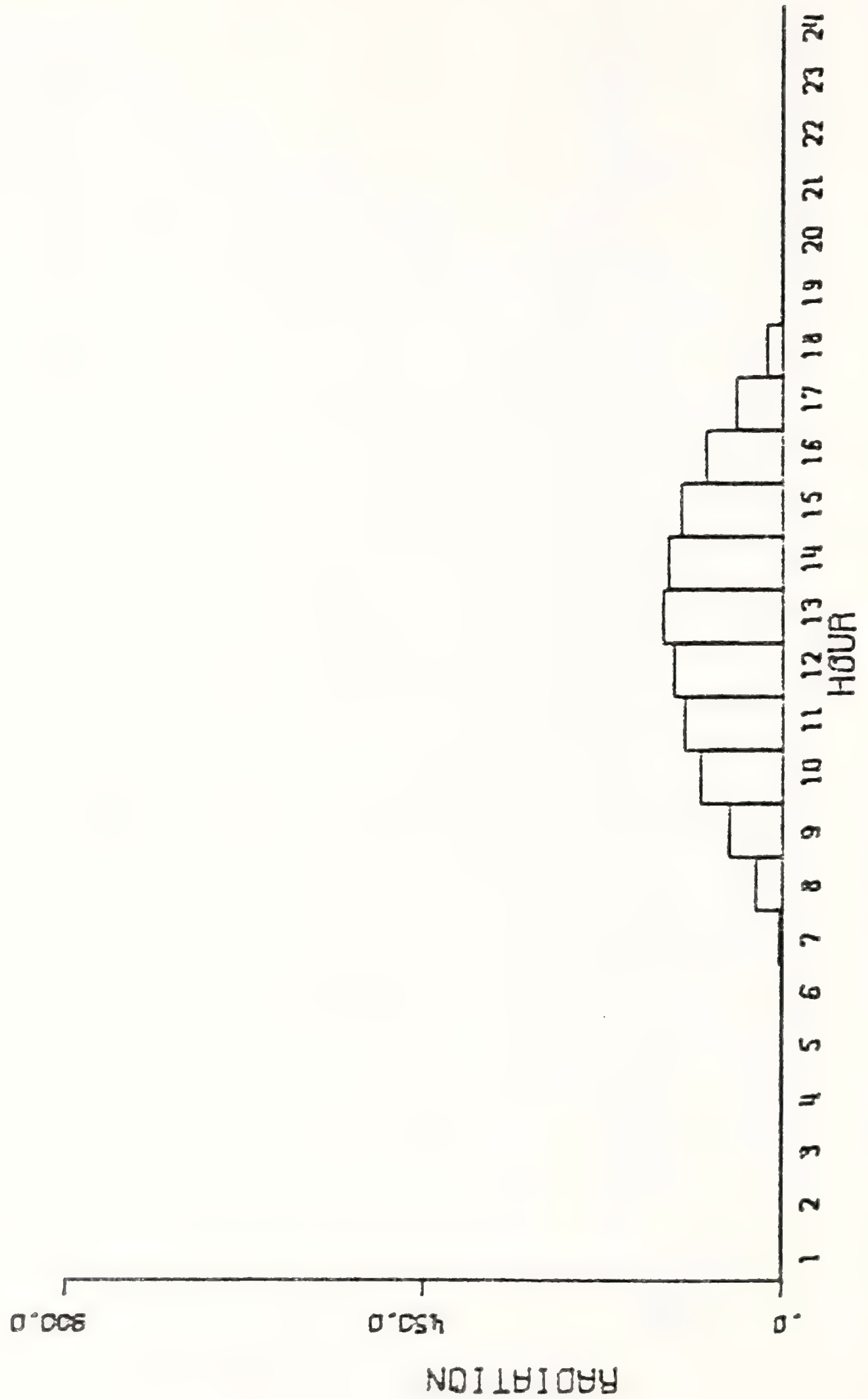
DIURNAL VARIATION OF TEMPERATURE AT 100 FEET (DEG F)
SITE - 23



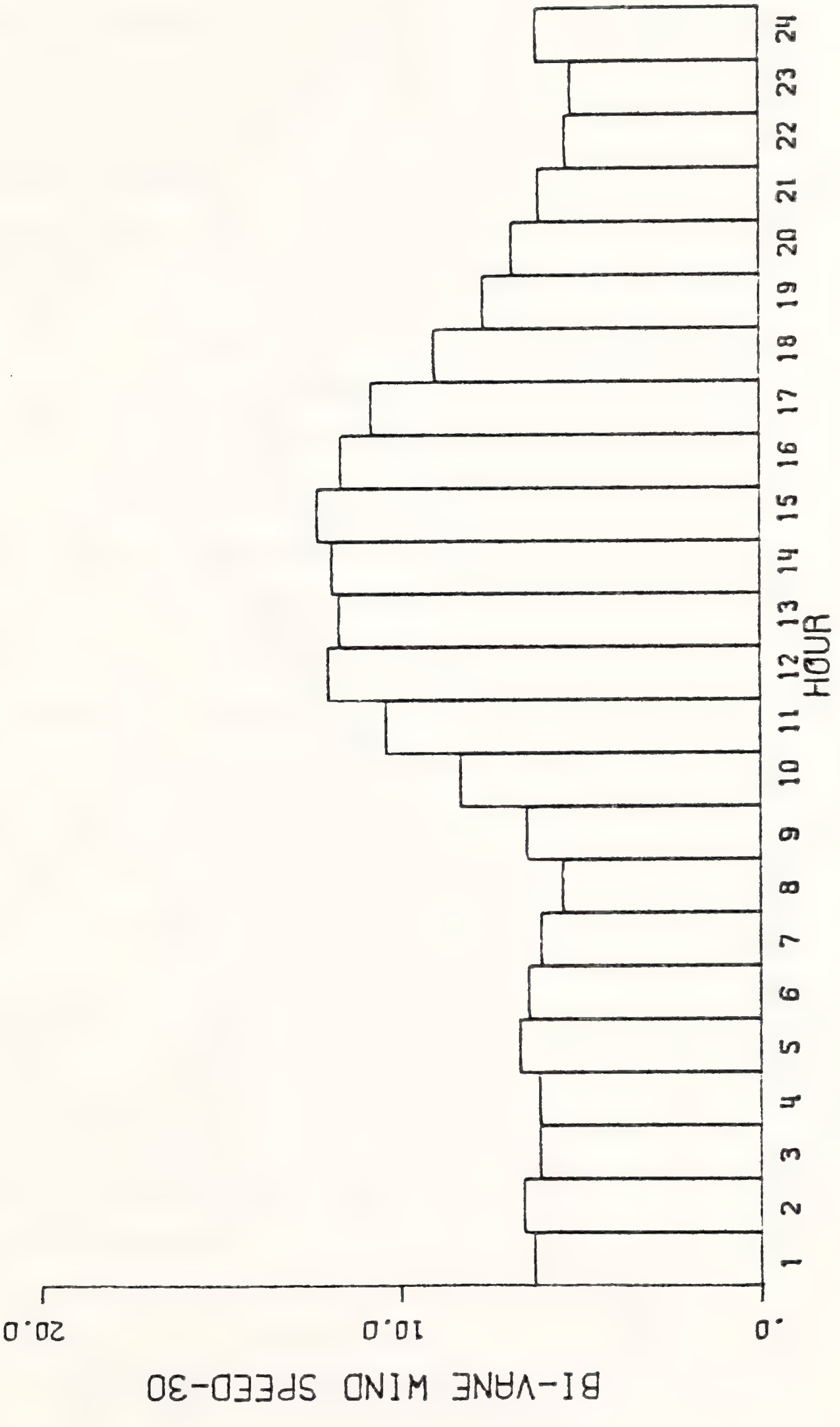
DIURNAL VARIATION OF TEMPERATURE AT 200 FEET (DEG F)
SITE - 23



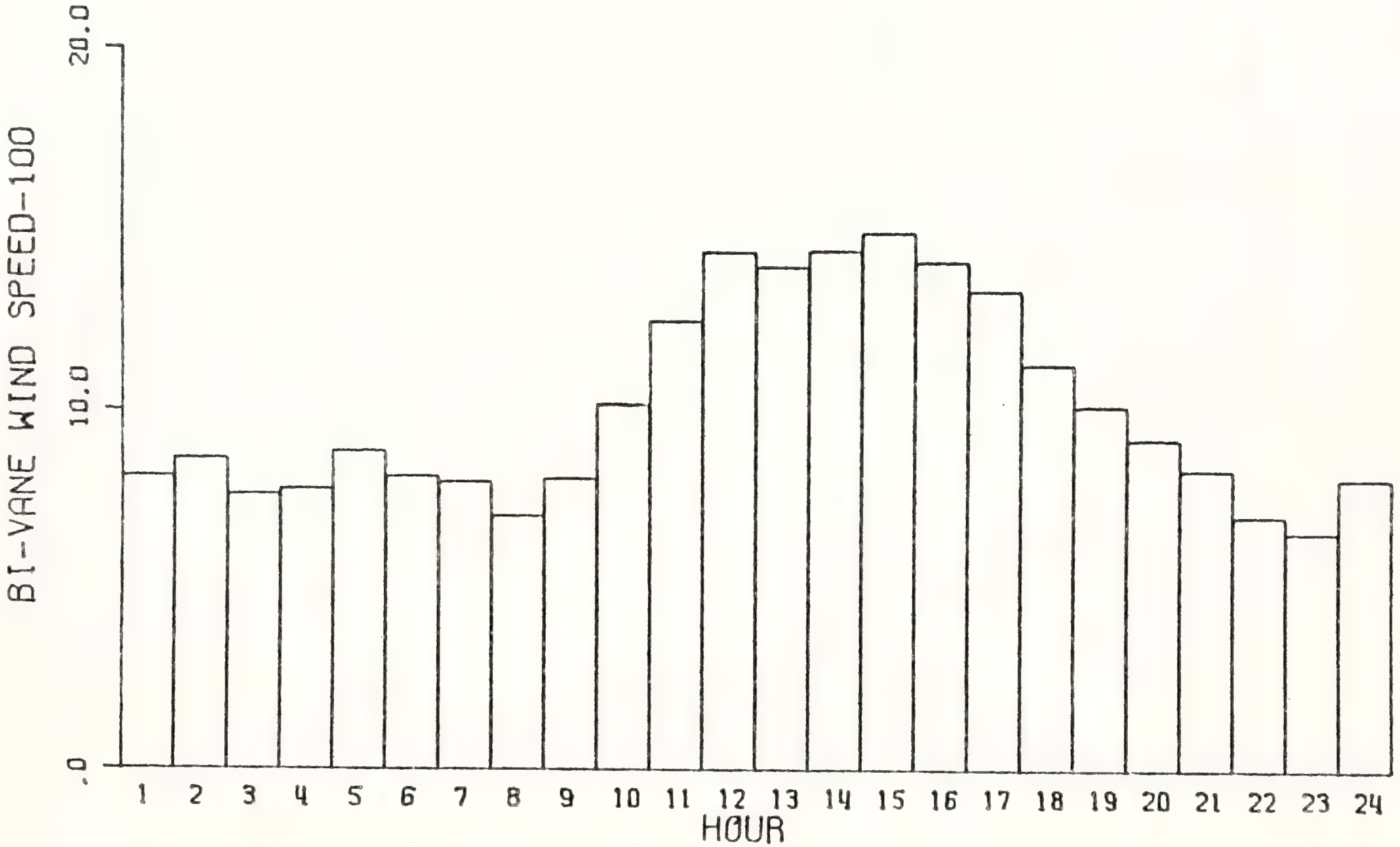
DIURNAL VARIATION OF BAROMETRIC PRESSURE
SITE - 23



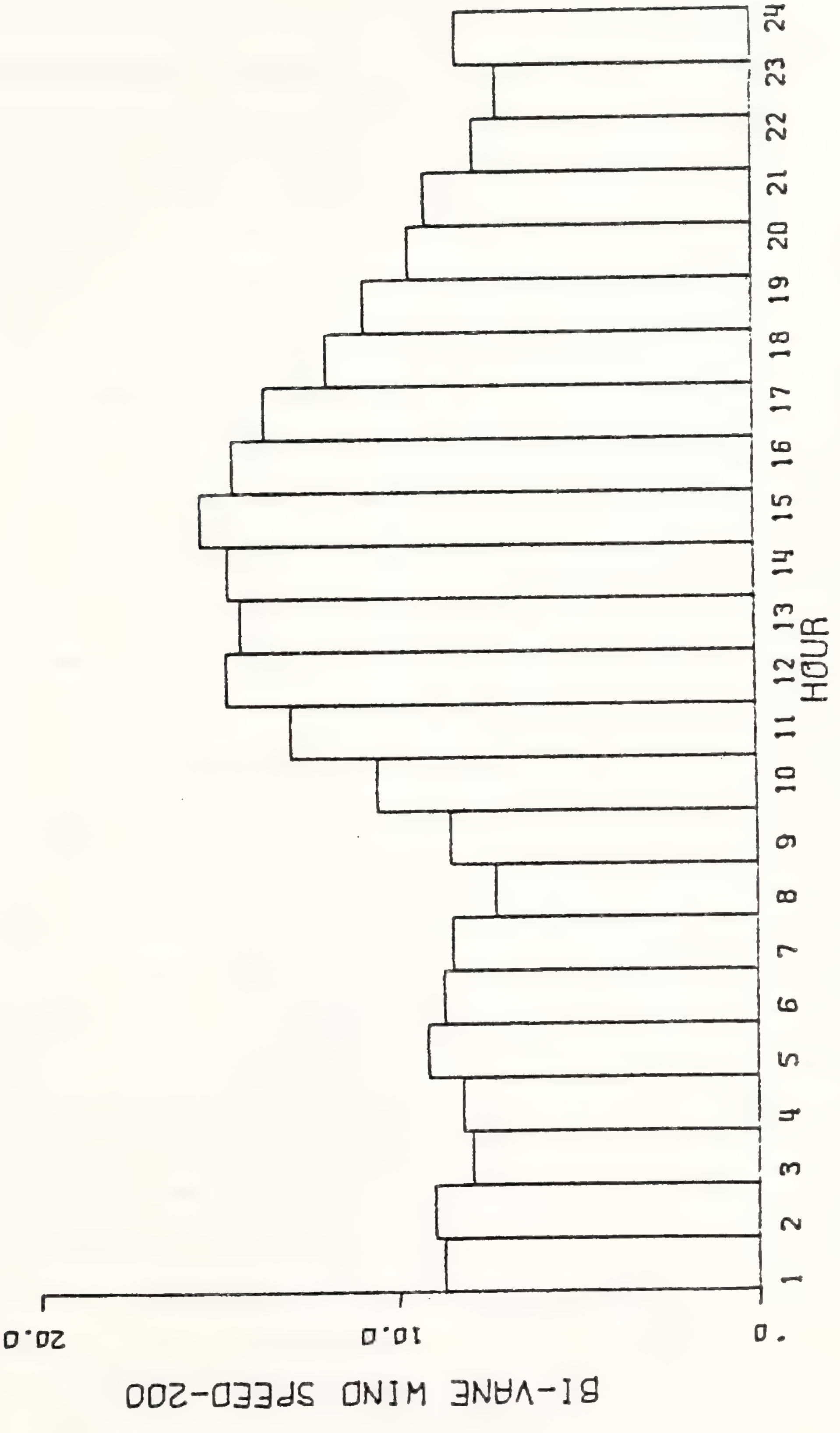
HOURLY TOTAL SOLAR RADIATION (LANGLEY)
SITE - 23



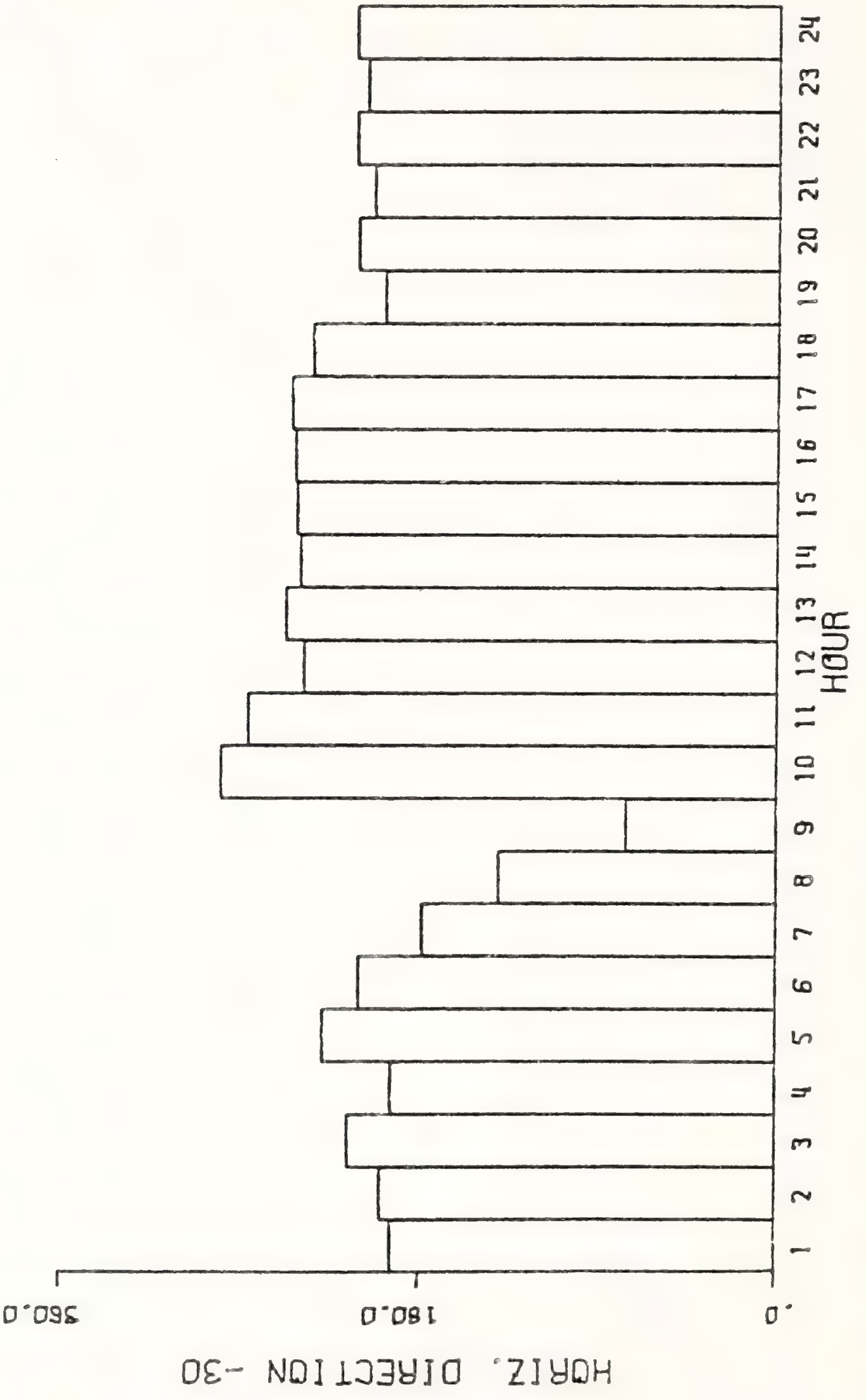
DIURNAL VARIATION OF BI-VANE WIND SPEED AT 30 FEET
SITE - 23



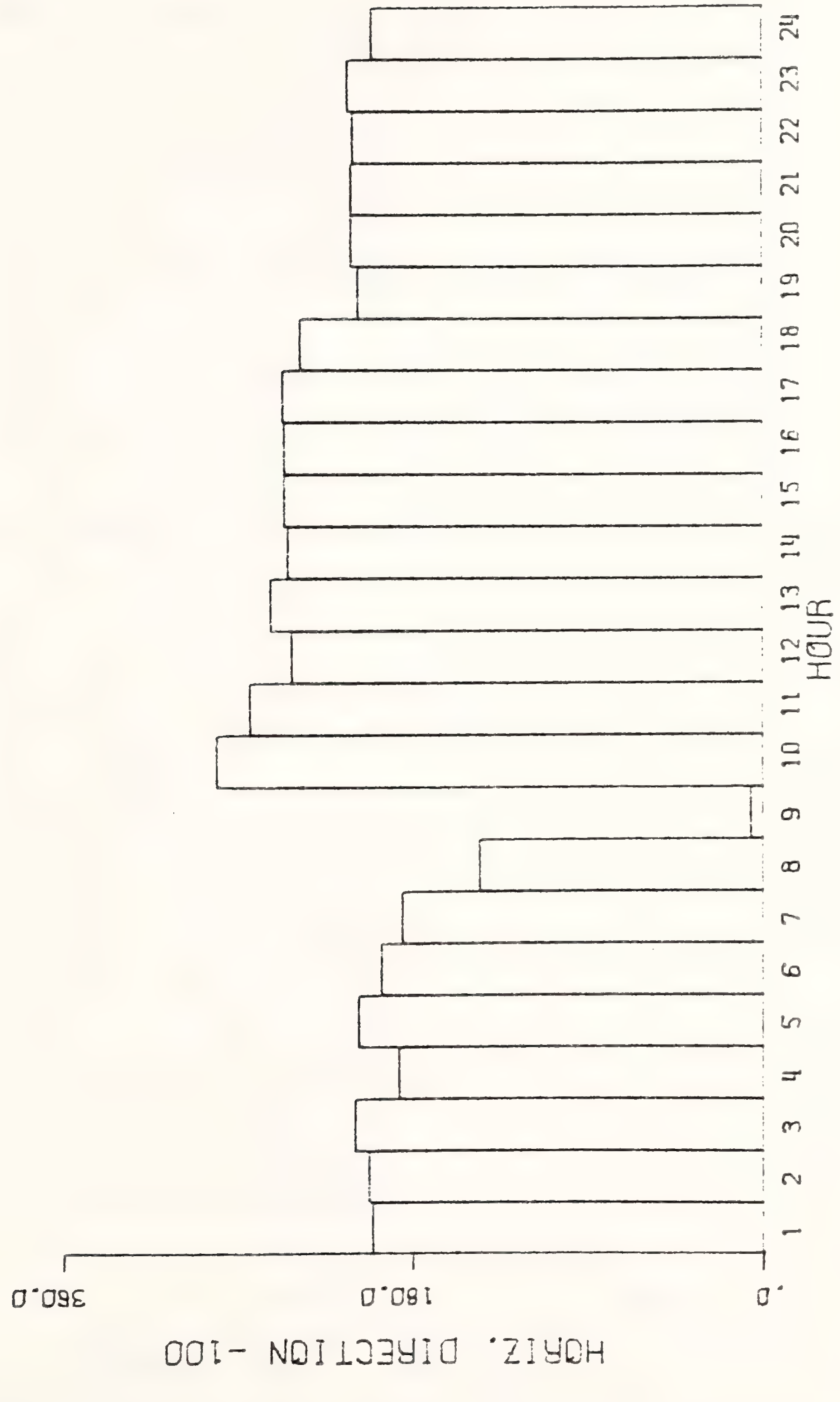
DIURNAL VARIATION OF BI-VANE WIND SPEED AT 100 FEET
SITE - 23



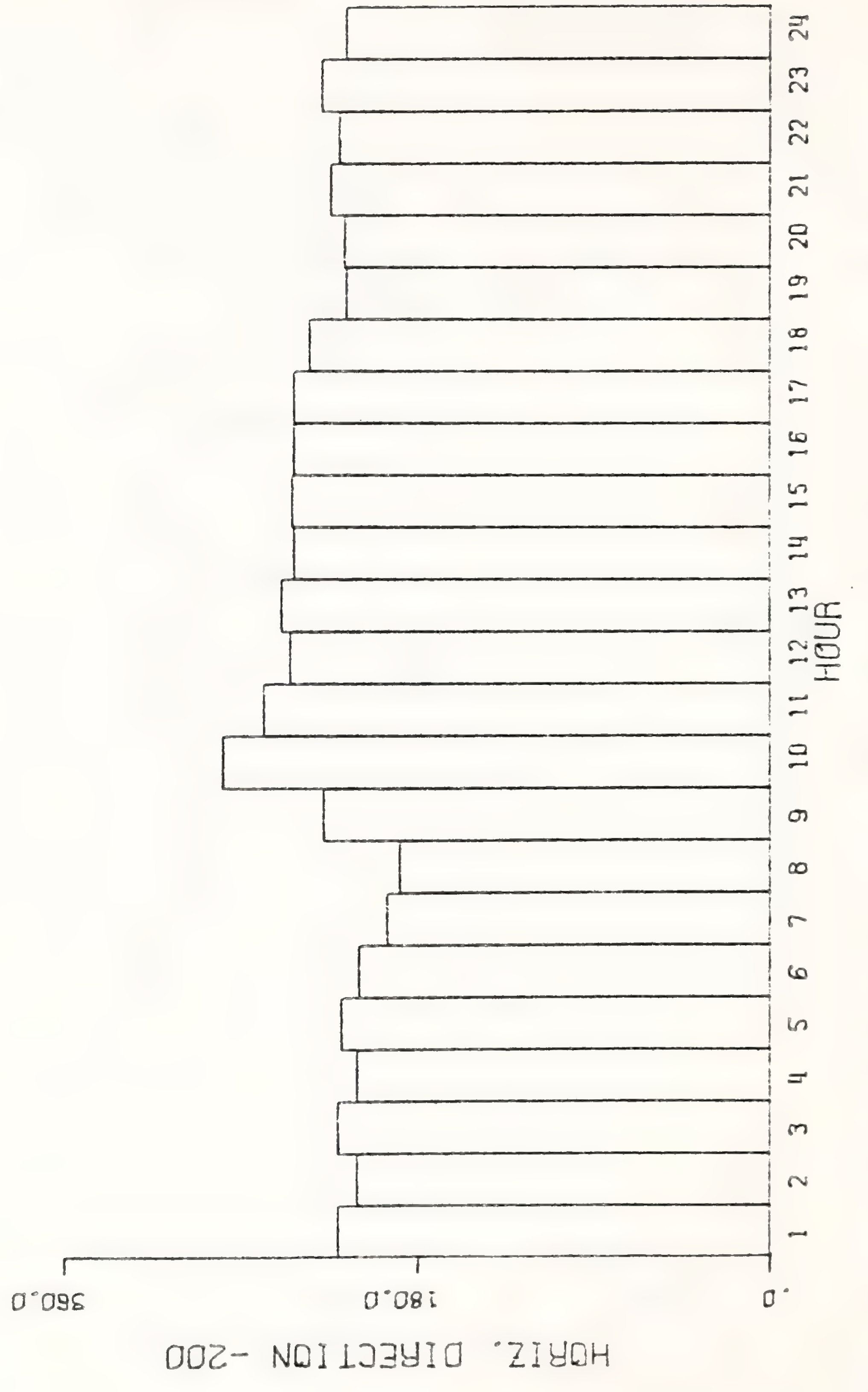
DIURNAL VARIATION OF BI-VANE WIND SPEED AT 200 FEET
SITE - 23



DIURNAL VARIATION OF HORIZONTAL BI-VANE WIND DIRECTION AT 30 FEET
SITE - 23



DIURNAL VARIATION OF HORIZONTAL BI-VANE WIND DIRECTION AT 100 FEET
SITE - 23



DIURNAL VARIATION OF HORIZONTAL BI-VANE WIND DIRECTION AT 200 FEET

SITE - 23

C-a SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING PYRANOMETER RECORDING
PERIOD(5/ 1/76 TO 5/31/76)

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5/ 1								D	C	D	D	D	D	D	D	D	D	D						
5/ 2								C	C	D	D	D	D	D	D	D	D	D						
5/ 3								C	C	C	D	D	C	C	C	B	C	C						
5/ 4								C	C	C	C	C	C	C	C	C	D	D						
5/ 5								C	C	C	C	C	C	B	C	B	C	C						
5/ 6								C	C	C	C	B	B	B	C	C	C	D						
5/ 7								C	B	B	C	D	D	D	D	D	C	D						
5/ 8								D	D	D	D	D	D	D	C	D	D	D						
5/ 9								D	D	D	D	D	D	D	D	D	D	D						
5/10								D	D	D	D	D	D	D	D	D	D	D						
5/11								D	D	D	D	D	D	D	D	D	D	D						
5/12							C	C	C	B	B	B	B	B	C	C	C	D						
5/13							D						D	D	D	D	D	D						
5/14							C	C	B	B	C	D	D	D	D	D	D	D						
5/15							C	C	C	C	B	D	B	B	C	D	D	D						
5/16							D	D	D	D	D	D	D	D	D	D	D	D						
5/17								C	C	C	C	D	C	D	D	D	D	C						
5/18								C	D	D	D	D	C	D		C	D	D						
5/19							C	D	C	D	D	D	D	D	D	D	D	D						
5/20							D	D	D	C	C	B	B	B	C	C	C	D						
5/21							C	C	C	B	B	B	B	B	C	C	C	D						
5/22							C	C	B	C	A	B	B	B	B	D	C	D						
5/23							D	C	C	C	D	D	D	D	D	D	D	D						
5/24							D	D				D	D	D	D	D	D	D						
5/25							D	D	D	D	D	D	D	D	D	D	D	D						
5/26								C	C	C	C	C	B	C	A	C	B	C	C					
5/27							C	C	C	B	A	B	B	B	C	C	D	D	D					
5/28							C	D	D	C	D	C	C	D	D	D	D	C						
5/29							C	D	C	C					D	D	D	D	D					
5/30							C	C	B	B	B	B	B	B	C	C	C	D	D					
5/31							C	C	C	D	D	D	D	D	D	D	D	D	D					

* NON-ZERO PYRANOMETER READING BUT STABILITY CLASS UNCERTAIN SINCE NIGHTTIME NET RADIATION INDEX IS REQUIRE

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(3/ 1/77 TO 3/31/77)

	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1	F	E	F	E	E	E	E	E	B	D	D	D	D	D	D	D	D	D	E	D	C	D	D	D
3/ 2	D	D	D	E	D	D	D	D	C	B	B	B	B	B	B	C	D	D	D	D	D	D	D	D
3/ 3	D	D	D	D	D	D	D	D	B	A	B	B	B	B	C	A	A	D	E	F	E	E	E	F
3/ 4	F	E	F	E	E	E	E	E	C	A	B	B	B	C	C	C	D	E	E	F	F	F	F	F
3/ 5	F	F	F	F	F	F	F	F	D	D	B	B	B	A	C	A	B	D	E	F	F	F	F	F
3/ 6	F	F	F	F	F	F	F	F	E	B	B	B	B	B	B	B	B	D	E	F	F	F	F	F
3/ 7	F	F	F	F	F	F	F	F	E	A	C	D	D	D	D	D	B	D	E	E	E	F	F	F
3/ 8	F	E	F	F	F	F	E	E	D	D	D	D	D	C	B	D	D	E	E	F	F	F	F	F
3/ 9	F	F	F	F	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F	D
3/10	F	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
3/11	D	D	D	D	D	D	E	E	C	D	D	D	D	D	D	D	D	D	E	E	F	F	E	F
3/12	F	F	F	F	F	F	F	F	D	D	C	B	B	B	B	B	C	D	E	E	F	E	E	E
3/13	F	F	D	D	D	D	D						D	D	D	D	D	D	E	F	F	E	E	E
3/14	F	F	F	F	F	F	F	E	A	A	B	B	B	B	C	C	B	D	E	F	E	E	E	E
3/15	F	F	F	F	F	F	F	F	D	C	B	D	B	B	B	C	C	D	E	F	F	F	F	E
3/16	F	F	F	F	F	F	F	E	C	D	D	D	D	D	D	D	D	D	F	F	F	F	F	F
3/17	F	D	D	D	D	D	D	D	D	A	A	B	B	C	B	D	C	D						E
3/18	E	F	E	F	E	D	D	D	D	D	D	C	B	B		B	B	D	E	E	D	E	F	F
3/19	F	F	F	F	F	F	F	E	B	D	D	D	E	D	D	D	D	D	D	E	E	E	D	D
3/20	F	D	E	F	D	D	D	C	C	C	D	A	A	A	B	B	B	C	E	F	E	E	E	E
3/21	F	F	F	F	F	F	F	E	D	A	A	A	B	B	B	B	B	B	E	E	E	F	F	F
3/22	F	F	F	F	F	F	F	F	C	A	A	A	A	A	A	A	B	B	E	E	E	F	F	F
3/23	F	F	F	F	F	F	E	F	B	B	D	D	C	C	D	D	C	B	E	E	E	E	E	E
3/24	F	D	E	E	E	D	E	E				D	D	D	D	D	D	C	E	E	E	D	D	D
3/25	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C	D	D	D	D	D	D
3/26	E	D	D	D	D	D	E	D	B	B	B	B	A	C	B	B	A	C	E	F	F	F	F	F
3/27	F	F	F	F	F	E	F	F	C	B	A	A	A	B	B	B	B	B	D	D	D	D	E	E
3/28	D	D	E	D	D	D	E	D	D	C	D	C	B	C	D	C	D	D	D	D	E	F	F	F
3/29	F	F	F	F	F	F	F	D	B	B	B			D	D	C	C	C	D	D	D	D	E	F
3/30	F	F	F	E	E	F	E	D	A	A	A	A	B	B	B	B	B	B	D	F	F	E	F	F
3/31	F	F	F	F	E	E	E	D	B	D	D	D	D	D	D	D	D	D	D	E	E	D	E	F

C-b SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
A STABILITY CLASS

	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1																								
3/ 2																								
3/ 3										5 NNW						3 NNW	2 NW							
3/ 4										2 NNW														
3/ 5														4 NNW		3 NNW								
3/ 6																								
3/ 7										3 WSW														
3/ 8																								
3/ 9																								
3/10																								
3/11																								
3/12																								
3/13																								
3/14									5 NNW	5 NNW														
3/15																								
3/16																								

RADIAN
CORPORATION

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                C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
             STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                       PERIOD( 3/ 1/77 TO  3/31/77)

                         HOURLY WIND AND DIRECTION
                           A STABILITY CLASS

3/17                                         1   2
                                           NNW WSW
3/18

3/19

3/20                                                 4   2   3
                                                     N   N NNW
3/21                                         4   3   3
                                           NNW NNW SSE
3/22                                         2   1   3   2   3   4   4
                                           SSW   W ENE NNE  NE NNE  SW
3/23

3/24

3/25

3/26                                                     3               4
                                                       NNW             NNW
3/27                                             2   3   4
                                               ESE  SE  SW
3/28

3/29

3/30                                     3   4   2   4
                                         N   N NNE   N
3/31
```

RADIAN CORPORATION

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
B STABILITY CLASS

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1									9 ESE															
3/ 2										5 WNW	7 WNW	8 WNW	8 NW	10 WNW	10 NW									
3/ 3									2 NW		5 NW	8 NW	6 NW	6 NNW										
3/ 4											8 NNW	9 NNW	10 N											
3/ 5											5 NNW	5 NW	5 NNW				5 NW							
3/ 6										5 S	7 SSW	6 SSW	7 SSW	7 SSW	7 SSW	6 SSW	7 SSW							
3/ 7																	10 SSW							
3/ 8															9 WSW									
3/ 9																								
3/10																								
3/11																								
3/12												4 S	9 SSE	8 S	6 SW	9 S								
3/13																								
3/14											4 [illegible]	9 [illegible]	7 [illegible]	5 NW			6 WSW							
3/15											6 SE		9 SSW	10 S	11 SSW									
3/16																								

```
            C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
        STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                    PERIOD( 3/ 1/77 TO  3/31/77)

                     HOURLY WIND AND DIRECTION
                         B STABILITY CLASS

3/17                        10     8          11
                           WSW   WSW          SW
3/18                               9     9           7    10
                                   W   WNW           W     W
3/19      10
         SSW
3/20                  6                        6     5     4
                    NNE                      NNW     W   NNE
3/21                               5     7     8     9     6     7
                                   W   WSW    SW   SSW    SW    SW
3/22                                                     5     5
                                                       SSW   SSE
3/23       7    10                                            11
          SE     S                                           SSW
3/24
3/25
3/26       1     5     6     8                 2     5
          NE   NNW    NW    NW               NNE   NNW
3/27             3                       6     7    10     9    10
                 E                      SW   SSW   SSW   SSW   SSW
3/28                              11
                                   W
3/29       6    10     9
         WNW     W     W
3/30                               5     7     6     8     9     8
                                   E   SSE   SSE   SSE   SSE     S
3/31       5
         SSW
```

```
                      C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                   STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                           PERIOD( 3/ 1/77 TO  3/31/77)

                            HOURLY WIND AND DIRECTION
                               C STABILITY CLASS

                                       HOUR
           1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24

3/ 1                                                                                       6
                                                                                         WSW
3/ 2                                       2                               7
                                         NNW                             WNW
3/ 3                                                                   5
                                                                       N
3/ 4                                       0                      11  11  11
                                         WSW                       N   N NNW
3/ 5                                                                   2
                                                                     NNW
3/ 6
3/ 7                                              12
                                                 SSW
3/ 8                                                              13
                                                                 WSW
3/ 9
3/10
3/11                                      12
                                          [illegible]
3/12                                               3                          11
                                                   E                           S
3/13
3/14                                                                   8   7
                                                                     NNW   W
3/15                                           2                          12  13
                                             NNE                         SSW SSW
3/16                                      13
                                           S
```

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                C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
             STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                      PERIOD( 3/ 1/77 TO  3/31/77)

                         HOURLY WIND AND DIRECTION
                           C STABILITY CLASS

3/17                                                        12           5
                                                            SW           E
3/18                                                12
                                                   WNW
3/19

3/20                                 7   6   5                               6
                                    NE  NE NNE                               E
3/21

3/22                                     5
                                         E
3/23                                                    12  12          13
                                                       SSW SSW          SW
3/24                                                                        13
                                                                           SSW
3/25                                                                    11   8
                                                                         S   S
3/26   4                                                     1               4
                                                           ENE              NW
3/27                                     2
                                       ESE
3/28                                        11      11      12      12
                                             W       W       W       W
3/29                                                                12  12  13
                                                                    SW  SW  SW
3/30

3/31
```

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
D STABILITY CLASS

	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1										16 SSE	24 SSW	25 SSW	19 SSW	17 S	16 SSW	14 SSW	14 WSW	14 SW		8 SW		3 NW	4 WNW	9 NW
3/ 2	5 WNW	8 NW	3 WNW		3 WNW	4 WNW	5 NW	3 NW									9 WNW	9 WNW	9 NW	7 NW	5 NW	4 WNW	4 WNW	3 WNW
3/ 3	3 NNW	3 WNW	3 NNW	3 NNW	2 WNW	2 WNW	3 NW	2 NW										3 NNW						
3/ 4																	10 N							
3/ 5									3 SE	1 NE								2 NNW						
3/ 6																		8 SSW						
3/ 7												16 SSW	16 SSW	14 SSW	17 SSW	16 SW		11 SSW						
3/ 8									20 SSW	20 SSW	21 SSW	18 SSW	16 SSW			11 NW	9 NNW							
3/ 9					18 S	21 S	23 S	22 S	20 S	14 S	20 SSW	22 SSW	17 SSW	19 SSW	21 SW	20 SW	19 SSW	12 SSW						12 NW
3/10			12 N	8 NNW	10 N	15 N	18 N	14 N	17 N	17 NNW	14 NNW	18 NW	21 NNW	25 NNW	26 NNW	23 NNW	19 NNW	18 NNW	15 NNW	14 NNW	16 NNW	17 N	16 NNW	17 N
3/11	14 N	13 N	15 E	15 NNW	15 NNW	12 NNW				15 N	15 NNW	17 N	17 N	15 N	15 N	14 N	15 NNE	13 NNE						
3/12									1 E	3 ENE								8 S						
3/13			15 SE	23 S	24 S	17 S	20 S						25 SSW	25 SSW	24 SSW	21 SW	21 SSW	15 SW						
3/14																		5 WSW						
3/15	3 ESE								1 NNE			15 SSW						9 S						
3/16										18 S	19 SSW	18 SSW	17 SSW	17 SSW	17 SSW	16 SSW	17 SW	11 WSW						

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
D STABILITY CLASS

3/17		13 WSW	14 WSW	12 W	11 WNW	4 W	2 W	0 E	0 NNE							10 WSW		5 NNW						
3/18	6 WSW					6 W	3 W	3 W	5 W	11 W	12 WNW							11 WNW			7 NNE			
3/19										16 SW	14 SSW	14 SSW	15 SSW	16 SSW	18 SW	16 SSW	18 SW	18 SSW	14 S				16 SW	14 SW
3/20	16 SW	19 SW			15 W	11 WNW	9 NE																	
3/21									2 N															
3/22																								
3/23											15 SSW	14 SSW			16 SW	15 SW								
3/24		15 S				14 S						18 SSW	19 SSW	20 SW	19 SSW	20 SSW	16 SSW					14 S	15 S	20 S
3/25	25 S	23 SSW	22 SSW	19 SSW	21 SSW	21 SSW	16 SSW	14 SSW	18 SSW	22 SSW	18 SSW	20 SSW	19 SW	14 SSW	16 SSW	16 S			11 S	5 WNW	3 ESE	3 E	2 WNW	3 NNW
3/26		4 [illegible]	5 WNW	2 NNW	3 W	2 SW		3 E																
3/27																			12 SSW	13 SSW	15 SSW	13 SSW		
3/28	13 [illegible]	17 [illegible]		15 WNW	10 NNW	8 W		11 W	14 W		14 W				15 W		14 NNW	3 WNW	10 W	5 N				
3/29								3 SSW						15 SW	13 WSW				15 SW	11 SW	5 WSW	2 SW		
3/30								1 ENE											5 S					
3/31								1 N		14 SW	16 SW	18 SW	16 SSW	16 SW	17 SW	18 SW	17 SW	17 SW	11 SW			4 WNW		

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
F STABILITY CLASS

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1		5 ESE		6 ESE	9 ESE	7 SE	9 SE	10 SSE											9 SSW					
3/ 2				3 [illegible]																				
3/ 3																			3 NNW		2 W	1 WSW	1 W	
3/ 4		0 S		2 SW	0 WSW	6 WSW	0 SW	10 WSW										10 NNW	7 NNW					
3/ 5																			3 W					
3/ 6									1 ESE										12 S					
3/ 7	10 S	10 SSE							5 SE										5 SSW	11 SSW	12 S			
3/ 8		10 SSW					8 S	11 SSE										6 NNW	5 SE					
3/ 9																			13 S	10 S				
3/10	6 [illegible]	10 [illegible]																						
3/11							13 [illegible]	9 [illegible]											11 NNE	8 NNE			1 WSW	
3/12																			7 SSE	3 SE		11 SE	9 ESE	10 E
3/13	12 SSE	11 ESE																	10 SSW			11 NW	3 WNW	5 NW
3/14	5 [illegible]							0 [illegible]											4 E		7 W	2 WNW	1 SE	2 SE
3/15																			5 S					10 S
3/16		9 SE					9 SSE	8 SSE																

C-b SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
E STABILITY CLASS

```
3/17   13                                                                                           6
       SW                                                                                          NW
3/18        1   3       2                                                      11  11       1
            W   W       W                                                     WNW  NW     NNE
3/19    2                           8                                              11  13  12
        S                         SSW                                             SSW SSW  SW
3/20           10  10                                                           5       8   7   6   9
              WSW WNW                                                         ESE      NW NNW NNW NNW
3/21    4                           1                                           9   9   4
      NNE                         ESE                                         SSW SSW   S
3/22                                                                            7   8   9
                                                                              SSE SSE SSE
3/23                9          8   5                                           9  10  10   9  10  12
                   SE        SSE  SE                                         SSW SSW   S   S   S   S
3/24   11       9  10  12     12   9                                          11  11  11
        S       S SSW   S    SSE SSE                                         SSW   S SSE
3/25
3/26                            1                                               0
                               SE                                             NNE
3/27                        0       0                                                          12  11
                            S     NNE                                                          SW  NW
3/28            5               4                                                   3
              [illegible]     WSW                                                  SE
3/29                                                                                            4
                                                                                              SSW
3/30            3   2   1       1                                                       3
              SSW SSW ESE     SSE                                                     ESE
3/31                    1   0   3                                               9   7       4
                      SSW   S SSW                                              SW   N       W
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RADIAN CORPORATION

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                 C-b SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
          STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                     PERIOD( 3/ 1/77 TO  3/31/77)

                          HOURLY WIND AND DIRECTION
                             F STABILITY CLASS

                                      HOUR
          1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24

3/ 1      6         5
         SE       ESE
3/ 2

3/ 3                                                                                                     2                   1
                                                                                                       WNW                   W
3/ 4      2         2                                                                                    4    5    3    3    3
         SW       WNW                                                                                   NW  WNW    W  WSW  SSE
3/ 5      2    0    1    2    2    2    1    3                                                           6    5    1    1    1
        SSE    N  WNW  ESE  SSE  SSE  NNE   SE                                                          SW  SSW  WSW  SSE  SSE
3/ 6      2    1    1    2    2    3    2    3                                                           6    2    3    6    6
         SW   NE    E  ESE  ESE  SSE   SE  ESE                                                         SSE    S  SSE    S    S
3/ 7                5    7    3    3    4    3                                                                     7    5    5
                   SE  SSE  SSE   SE   SE   SE                                                                     S   SE  ENE
3/ 8      5         6    5    6    6                                                                     5    5    2    2    4
        SSE       SSE    E    E    E                                                                   SSE  SSE  SSE   SE  SSE
3/ 9      4    4    5    3                                                                                    4    8    7
        SSE  SSW   SE   SE                                                                                    S  SSW    W
3/10

3/11                                                                                                          6    2         1
                                                                                                             NE  NNE       SSE
3/12      1    0    0    0    1    1    2    2                                                                6
        SSE   SE    E  ENE  SSW  SSE    S  ESE                                                               SE
3/13                                                                                                     8    5
                                                                                                        SW  WSW
3/14           1    4    3    2    4    3                                                                4
               N    W    W  WSW   SW   SW                                                                S
3/15           4    2    1    0    1    0    0                                                           2    4    1    2
              SE   SW    E  ESE  WSW   NE  SSE                                                         SSE  SSW  SSW  SSE
3/16      9         5    7    5    6                                                                7    8    4    3    6    6
        SSE       SSE   SE  ESE  SSE                                                              WSW   SW   NW   SE    S  SSW
```

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               C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
             STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                        PERIOD( 3/ 1/77 TO  3/31/77)

                          HOURLY WIND AND DIRECTION
                             F STABILITY CLASS

3/17

3/18                 4                                                                          2   2
                     W                                                                        WSW SSW
3/19         8   9   8  10   9   8
           SSW SSW SSW SSW SSW SSW
3/20                                                                            3
                                                                                S
3/21         5   3   2   6   3   1                                                          2   2   2
            SE SSE  SE  SW   S SSW                                                        SSE SSE   S
3/22     2   3   1   1   3   2   3   2                                                      5   1   3
       SSE  SE  SE SSE SSW   S  SE SSE                                                      S   S SSW
3/23     1   3   8       9   8
         S SSE SSE     SSE SSE
3/24

3/25

3/26                                                                            1   1   0   0   1
                                                                                S WSW  NW  NW WSW
3/27     1   2   2   1   1       0
       SSE   W WNW  SW   W      NE
3/28                                                                                    4   3   2
                                                                                        S WNW  SE
3/29     2   4   3   2   4   4   2                                                              9
        SW  SW  SW SSE SSW   S  SE                                                            SSW
3/30     6   3               1                                                  5   6       2   1
       SSW  SW               S                                                SSE  SE     ESE SSW
3/31     3   1   2   1                                                                          3
       SSW WNW   E   W                                                                          W
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RADIAN CORPORATION

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(5/ 1/77 TO 5/31/77)

	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5/ 1	E	D	E	D	D	D	E	D	B	D	D	D	D	D	D	D	D	C	D	B	B	A	B	B
5/ 2	B	B	A	A	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A
5/ 3	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	A	A	A	A	D	D	B	D	D
5/ 4	F	D	D	C	B	C	D	C	A	A	B	B	B	C	B	B	B	B	D	D	E	E	E	E
5/ 5	F	E	E	E	E	F	F	E	A	A	B	B	B	A	A	A	B	A	D	F	F	F	E	E
5/ 6	F	E	F	F	F	F	F	F	D	B	B	B	B	B	B	B	B	B	E	E	F	E	E	E
5/ 7	D	E	E	F	F	F	F	F	D	A	C	D	D	D	D	D	B	B	D	D	D	E	E	D
5/ 8	E	D	E	F	E	E	D	D	D	D	D	D	D	C	B	C	B	C	D	F	F	F	F	F
5/ 9	F	F	E	F	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	E	E	E	E	C
5/10	B	B	C	B	B	D	D	C	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D
5/11	C	C	D	D	D	C	D	B	C	D	D	D	D	D	D	D	D	C	B	C	D	E	D	E
5/12	F	F	E	F	F	F	F	F	B	A	A	B	B	B	B	B	C	B	D	D	E	E	E	E
5/13	E	D	D	D	D	D	D						D	D	D	D	D	D	D	E	E	D	D	C
5/14	D	E	E	F	D	E	E	A	A	A	B	B	B	B	B	B	B	B	D	E	D	C	C	D
5/15	C	E	F	F	E	F	F	E	B	A	B	D	B	B	B	C	C	B	C	F	F	E	E	E
5/16	F	E	F	F	F	F	E	E	C	D	D	D	D	D	D	D	D	B	E	F	E	E	E	E
5/17	F	C	D	C	B	A	A	A	A	A	A	C	B	C	B	B	B	B	D	A	D	A	C	B
5/18	B	B	D	F	C	B	A	A	B	D	D	D	B	B		B	B	B	B	B	B	D	E	D
5/19	D	F	F	F	F	E	E	B	B	D	D	D	D	D	D	D	D	D	D	D	D	B	D	C
5/20	D	C	C	C	D	C	B	B	B	B	B	A	A	A	B	B	B	B	B	E	C	B	B	D
5/21	F	F	F	E	E	F	E	D	A	A	A	A	B	B	B	B	B	B	D	E	D	E	E	E
5/22	F	F	E	E	F	F	F	E	A	A	A	A	A	A	A	A	B	B	E	E	E	F	E	E
5/23	F	F	F	F	F	F	E	E	B	B	D	D	C	C	D	D	C	B	E	E	E	E	E	E
5/24	F	E	E	E	F	E	E	D				D	D	D	D	D	D	C	C	D	D	C	D	D
5/25	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	B	B	B	A	A	A	A
5/26	B	A	B	A	A	A	A	C	A	A	B	B	A	A	A	B	A	A	B	E	E	E	E	F
5/27	F	E	F	E	E	D	E	E	A	A	A	A	A	C	B	B	B	B	B	D	D	D	D	C
5/28	E	D	A	D	D	D	D	C	D	C	C	B	B	C	D	C	D	A	B	B	D	E	E	D
5/29	F	F	E	F	F	F	F	A	B	B	B				D	C	C	C	D	B	A	A	D	E
5/30	F	E	D	E	D	E	D	A	A	A	A	A	B	B	B	B	B	B	B	E	E	E	E	E
5/31	F	E	F	F	D	D	D	D	B	D	D	D	D	D	D	D	D	D	D	E	E	D	D	D

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C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
A STABILITY CLASS

	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1																						4 NW		
3/ 2			4 [illegible]	4 [illegible]	4 [illegible]	5 NW		5 NW	3 NNW													6 WNW	5 WNW	4 WNW
3/ 3	5 [illegible]	5 [illegible]	4 [illegible]	4 [illegible]	3 [illegible]	2 [illegible]	4 NW	2 NNW	2 NNW	3 NW						3 NNW	2 NW	3 NNW	3 N					
3/ 4									0 W	3 NW														
3/ 5									3 ESE	1 NE				4 N	2 N	3 NNW		2 NNW						
3/ 6																								
3/ 7										4 WSW														
3/ 8																								
3/ 9																								
3/10																								
3/11																								
3/12										3 E	3 E													
3/13																								
3/14								1 [illegible]	3 [illegible]	3 [illegible]														
3/15										2 NE														
3/16																								

```
                     C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                   STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                            PERIOD( 3/ 1/77 TO  3/31/77)

                               HOURLY WIND AND DIRECTION
                                  A STABILITY CLASS

3/17                     5   3   0   0   2   3                                   4       3
                       WNW   W   E NNE WNW   W                                   W     WNW
3/18                         4   4
                           WNW WNW
3/19

3/20                                             4   3   3
                                                 N   N NNW
3/21                                 2   4   3   4
                                   WSW NNW   N SSE
3/22                                 2   2   2   3   2   4   4   4
                                    SE SSW WSW ENE   N  NE NNE  SW
3/23

3/24

3/25                                                                                 3   4   2   3
                                                                                    SE   E WNW NNW
3/26     4       3   3   2   1       1   3           3   1   2       4   4
         N     NNW   W  SW  SE     ENE NNW         WNW  NE NNE     NNW  NW
3/27                                 2   3   3   3   4
                                   ESE   E  SE   S  SW
3/28         6                                                       3
           [illegible]                                             WNW
3/29                         3                                               6   3
                            SW                                             WSW  SW
3/30                         1   3   4   2   3
                             E   N   N WSW   N
3/31
```

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
B STABILITY CLASS

	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1									10 ESE											10 SW	7 WSW		5 NW	10 NW
3/ 2	6 [illegible]	9 [illegible]					6 NW			5 WNW	6 NNW	8 WNW	8 NW	11 NNW	10 NW	8 NNW	9 NNW	10 WNW	10 NW	9 NW	6 NW			
3/ 3											5 NW	8 NW	7 NW	7 NNW	5 N							0 WNW		
3/ 4					1 N						8 NNW	9 NNW	10 N		11 N	11 N	10 N	10 N						
3/ 5											5 NNW	5 NNW	4 NNW				6 NW							
3/ 6										6 SSW	8 SSW	7 SSW	7 SSW	7 SSW	7 SSW	6 SSW	7 SSW	9 SSW						
3/ 7																	11 SSW	14 SSW						
3/ 8															9 WSW		10 NNW							
3/ 9																								
3/10	7 [illegible]	11 [illegible]		9 [illegible]	12 N																			
3/11								11 NW											12 NNE					
3/12									1 ESE			4 S	9 SSE	8 SSW	6 SW	10 S		9 SSW						
3/13																								
3/14											5 [illegible]	9 NW	6 NNW	5 NW	9 WNW	8 W	7 WSW	6 WSW						
3/15									1 N		9 S		10 SSW	11 S	12 SSW			10 S						
3/16																		13 WSW						

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                  C-b SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
               STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                          PERIOD( 3/ 1/77 TO  3/31/77)

                             HOURLY WIND AND DIRECTION
                                B STABILITY CLASS

3/17                     13                                      9        13   11    6    5                            8
                        WNW                                      W        SW  WSW  ESE  NNW                          WSW
3/18      7    1                   8              6              9    9         8   10   12   12   13    7
        ESE    S                   W              W              W  WNW         W    W  WNW  WNW   NW  NNE
3/19                                         10   11                                                          15
                                            SSW   SW                                                          SW
3/20                                    9    8    6    6    7                   7    6    5    6    6              8    7
                                      NNE   NE  NNE   NE  NNE                 NNW    N    N  ENE  ESE            NNW  NNW
3/21                                                             6    8    9    9    7    8
                                                                 W  WSW   SW  SSW   SW   SW
3/22                                                                                 5    5
                                                                                   SSW  SSE
3/23                                              7   10                                    12
                                                SSE    S                                    SW
3/24

3/25                                                                                         9   13    5
                                                                                           SSW  SSW  NNW
3/26      5         7                                       6    8                   5              0
                  NNW                                      NW   NW                 NNW              W
3/27                                                                  7    8   11   10   11   15
                                                                     SW  SSW  SSW  SSW  SSW   SW
3/28                     11    9                                11   12                             11    6
                        NNW    N                                 W    W                            WNW    N
3/29                                              6   10    9                                            13
                                                NNE    N    E                                            SW
3/30                                                             4    8    9    9    9    8    6
                                                               ESE    S    S  SSE    S    S    S
3/31                                         0    6
                                             N   SW
```

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
C STABILITY CLASS

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1																		16 SW						
3/ 2																								
3/ 3																								
3/ 4				0 [illegible]		0 NW		10 NNW						12 N										
3/ 5																								
3/ 6																								
3/ 7											14 SSW													
3/ 8														14 WSW		13 NW		7 NNW						
3/ 9																		13 SSW						14 NW
3/10			14 [illegible]					15 N												16 NNW				
3/11	15 [illegible]	14 [illegible]				13 WNW			13 NNW									14 NNE		9 NNE				
3/12																	12 S							
3/13																								7 NW
3/14																						5 WNW	1 SE	
3/15	5 ESE															13 SW	14 SSW		7 S					
3/16									14 S															

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                 C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
             STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                        PERIOD( 3/ 1/77 TO  3/31/77)

                           HOURLY WIND AND DIRECTION
                              C STABILITY CLASS

3/17        15        14                                     12        14                                        2
           WSW         W                                      W        SW                                        S
3/18                       3
                         NNW
3/19                                                                                                                  16
                                                                                                                      SW
3/20        16   13   12        13                                                                         10
           WSW  WSW  WNW        NW                                                                         NW
3/21
3/22
3/23                                                              13   13             14
                                                                 SSW  SSW             SW
3/24                                                                                       15   13              16
                                                                                          SSW  SSW               S
3/25                                                                                  12
                                                                                       S
3/26                                     4
                                         E
3/27                                                                                                                  14
                                                                                                                      NW
3/28   15                                13        12                   13        12
      WSW                                 W         W                    W         W
3/29                                                                              13   14   13
                                                                                 WSW   SW   SW
3/30
3/31
```

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
E STABILITY CLASS

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1		0 SE		8 SE	10 ESE	9 SE		11 SE		17 SSE	27 SSW	27 SSW	21 SSW	18 SSW	18 SSW	16 SSW	16 WSW		11 SW					
3/ 2																								
3/ 3																				2 NNW	2 NW		1 NW	2 WNW
3/ 4		1 WSW	2 [illegible]				1 NW												8 NNW	5 NNW				
3/ 5																			2 N					
3/ 6									2 S															
3/ 7	14 SSW								4 S			18 SSW	18 SSW	16 SSW	18 SW	18 SW			8 SW	16 SSW	15 SSW			4 ESE
3/ 8		15 SSW					13 SSW	14 SSE	23 SSW	22 SSW	24 SSW	19 SSW	17 SW						2 E					
3/ 9					22 S	25 S	27 S	27 S	23 S	15 S	22 SSW	25 SSW	19 SSW	21 SW	24 SW	22 SW	21 SW		16 SSW					
3/10						16 N	19 N		19 N	18 NNW	15 NNW	20 NW	23 NNW	26 NNW	27 NNW	25 NNW	20 NNW	20 NNW	17 NNW		17 NNW	19 N	17 N	18 N
3/11			17 N	17 NNW	17 NNW		15 NNW			15 N	16 N	18 N	18 N	16 N	15 N	16 N	16 NNE				8 NNE		0 N	
3/12																			7 SSE	5 SSE				
3/13		12 SE	17 SE	27 S	27 S	21 S	24 SSW						27 SSW	26 SSW	27 SW	23 SW	23 SW	18 SW	14 SW			13 NW	5 WNW	
3/14	6 [illegible]				2 WNW														6 E		8 N			2 ESE
3/15												16 SSW												
3/16										19 SSW	20 SSW	21 SSW	18 SSW	16 SSW	19 SSW	17 SW	19 SW							

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C-6 SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
D STABILITY CLASS

3/17			16 W																2 SSW		9 WSW			
3/18			2 SSE							13 WNW	13 WNW	13 WNW										1 N		2 WSW
3/19	1 SSW									17 SW	15 SSW	15 SSW	16 SSW	18 SW	20 SW	18 SW	19 SW	20 SSW	16 SSW	14 SSW	17 SSW		19 SW	
3/20	18 S				17 W																			11 NNW
3/21	4 ENE							1 SSW											10 SSW		7 SSW			
3/22																								
3/23											16 SSW	15 SSW			16 SW	16 SW								
3/24		16 S				16 S		10 S				20 SSW	21 SSW	22 SW	21 SSW	22 SSW	17 SSW			13 SSW	13 S		18 S	22 S
3/25	25 S	26 SSW	25 SSW	22 SSW	24 SSW	24 SSW	21 SSW	17 SSW	21 SSW	25 SSW	21 SSW	22 SSW	21 SW	16 SSW	17 SSW	17 S								
3/26																								
3/27						1 SW														17 SSW	19 SSW	17 SSW	14 SW	
3/28		18 WNW		16 WNW			6 W		16 W		15 W				16 W		15 NNW				2 ESE			0 ENE
3/29															14 WSW				17 SW				6 SW	
3/30			4 SW		2 SSW		0 SSE																	
3/31					2 SSW	7 SSW	3 SSW			15 SW	17 SW	19 SW	17 SW	17 SW	18 SW	20 SW	19 SW	18 SW	12 SW			5 NW	6 WNW	4 WNW

# C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
# STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
E STABILITY CLASS

	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1	7 SE		6 SE				10 SE																	
3/ 2																								
3/ 3																								
3/ 4	1 SSW																				7 NW	2 WNW	2 WNW	3 SSE
3/ 5		0 ENE	0 NNE	2 ESE	2 SE			4 SE															3 SSW	3 SSW
3/ 6		0 SSW	1 SSE																15 S	9 S	7 SSW	5 S	10 SSW	9 SSW
3/ 7		11 S	5 SSE																			11 SSW	5 S	
3/ 8	[illegible] S		8 S	4 E	6 E	6 E																		
3/ 9			[illegible] SSE																	12 S	5 SSW	10 SW	9 W	
3/10																								
3/11																						4 N		0 SE
3/12		1 SSE	0 [illegible]																		9 SSE	12 SE	10 SE	11 ESE
3/13	14 SSE																			10 SE	7 N			
3/14		4 [illegible]	4 [illegible]	4 [illegible]		5 WSW	5 WSW													5 S				
3/15		2 ESE		1 [illegible]	0 SE			0 [illegible]												2 S		2 SSE	4 SSW	11 S
3/16		11 SSE					10 SSE	10 S											9 WSW		5 WNW	3 E	6 S	9 SSW

RADIAN CORPORATION

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
E STABILITY CLASS

```
3/17    15
         S
3/18                 3                                                                           3
                   SSE                                                                           W
3/19                        12  12
                            SW  SW
3/20                                                                                 3
                                                                                     S
3/21         4   3   2   5       2                                                  13       5   4   4
           ESE ESE   E WSW       S                                                 SSW     SSW SSW SSW
3/22     3       3   3       3       3                                           7   7   9       3   3
       SSW     SSE SSW     SSW     SSW                                         SSE SSE SSE       S SSW
3/23     2           9           7   5                                          10  10  12  11  12  15
       SSE          SE         SSE  SE                                         SSW SSW   S SSW SSW   S
3/24    12      11  13  15      14
       SSW       S SSE SSW       S
3/25
3/26                                                                                 0   1   0   0
                                                                                   SSW WNW SSW ESE
3/27     2   3   4   2   2       0   0
       [illegible]     WNW      NE NNW
3/28                                                                                         4   3
                                                                                           SSW  NW
3/29     1   4   3   2                                                                              10
      [illegible] WSW ESE SSW                                                                       SW
3/30     9   1       5       1                                                       4   5   2   1   1
        SW WNW      SE     SSE                                                       S SSE ESE   E  SE
3/31     3   2                                                                      12   9
       WSW [illegible]                                                             WSW WNW
```

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(3/ 1/77 TO 3/31/77)

HOURLY WIND AND DIRECTION
F STABILITY CLASS

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3/ 1																								
3/ 2																								
3/ 3																								
3/ 4																								
3/ 5	2 SSE					0 S	1 E													4 SW	4 SSW	2 SW		
3/ 6	5 S			1 SSW	2 SSW	2 S	2 S	1 SSE																
3/ 7				6 S	5 SSW	3 S	4 S	4 S																
3/ 8																				4 SSE	4 SE	4 SSE	5 S	5 S
3/ 9	7 SSW	9 SSW		4 S																				
3/10																								
3/11																								
3/12	0 [illegible]			0 E	1 S	1 SSE	1 S	2 SE																
3/13																								
3/14																								
3/15			1 SE			1 S	0 NNE														4 SSW			
3/16	13 SSE		6 SE	6 SE	4 SE	8 S														9 SW				

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```
            C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
      STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                  PERIOD( 3/ 1/77 TO  3/31/77)

                    HOURLY WIND AND DIRECTION
                       F STABILITY CLASS

3/17

3/18

3/19     9  10  10  12
        SW  SW  SW  SW
3/20

3/21                 5
                   SSW
3/22     5           6       3                                                           8
         S         SSW       S                                                           S
3/23     7   9      10   9
         S SSE      SE SSE
3/24

3/25

3/26                                                                                         1
3/27                                                                                        NW

3/28

3/29                 5   5   2
                    SW  SW  SW
3/30

3/31         1   1
             W  SW
```

APPENDIX A

STABILITY WIND ROSE DIAGRAMS

APPENDIX A
STABILITY WIND ROSE DIAGRAMS

According to the data presented in AEC Safety Guide No. 23, the relationships between stability classes and σ_Θ are as follows (the values shown are averages for each stability classification...σ_Θ is the standard deviation of horizontal wind direction fluctuations).

Stability Classification	Pasquill Categories	Average Values σ_Θ (degrees)
Extremely Unstable	A	25.0°
Moderately Unstable	B	20.0°
Slightly Unstable	C	15.0°
Neutral	D	10.0°
Slightly Stable	E	5.0°
Moderately Stable	F	2.5°

Stability wind roses obtained at the trailers in the monitoring network are displayed in the following tables. Because of the relatively low heights above the surface (9 meters) at which the wind data is taken, the stability distributions are skewed toward the unstable end of the spectrum. That is, the unstable classes (A, B, and C) have a much higher frequency of occurrence than would be obtained with the Pasquill method of stability categorization (or with instruments at higher levels).

Table 1 depicts the frequency distribution of Pasquill stability categories based on σ_Θ from data collected by M. M. Pendergast and T. V. Crawford at the Savannah River Plant ("Actual Standard Deviations of Vertical and Horizontal Wind Direction Compared to Estimates from Other Measurements", Symposium on Atmospheric Diffusion and Air Pollution, September 9-13, 1974). Three distinct range patterns of stability class

distributions were observed: low, mid, and high, according to the height at which the σ_Θ measurements were taken.

TABLE 1

FREQUENCY DISTRIBUTION OF PASQUILL STABILITY CATEGORIES

	Stability Categories based on σ_θ							
Height, m	A $\sigma_\theta > 22$	B $18 \le \sigma_\theta < 22$	C $12 \le \sigma_\theta < 18$	D $8 \le \sigma_\theta < 12$	E $4 \le \sigma_\theta < 8$	F $2 \le \sigma_\theta < 4$	G $\sigma_\theta < 2$	
10	22.5	13.9	21.2	23.9	8.9	0.4	3.5	LOW RANGE
35	19.3	11.3	19.4	32.4	15.9	0.7	0.5	
91	9.6	6.7	13.5	21.7	29.6	15.4	2.5	MID RANGE
137	9.3	5.3	11.7	20.8	23.5	12.4	5.5	
152	7.0	2.9	6.3	17.1	25.9	25.5	14.7	HIGH RANGE
243	7.7	4.3	9.4	17.7	27.5	22.9	10.4	
304	7.2	3.7	8.0	17.2	23.7	23.9	11.3	

Also, Figure 1 (from D. H. Slade, Meteorology and Atomic Energy, 1968, p. 52) demonstrates that the line representing very stable conditions (which by their nature are associated with light winds) branches into three separate lines near the ground. The curve at the left represents the smallest values of σ_Θ usually observed. The curve that branches off to the right reflects the contribution of very low-level wind direction meander to the total standard deviation. These meandering oscillations decrease in amplitude very rapidly with height under stable conditions. The central curve represents typical inversion conditions. Actually, for a given stability condition, values of σ_Θ will always be greater when the wind is light than when it is strong. This phenomena is most noticeable in the lowest layers.

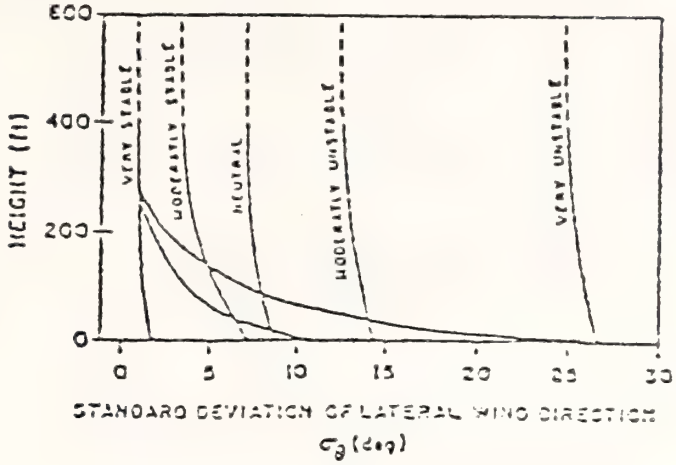

FIGURE 1

The vertical variation of the lateral wind-direction standard deviation (σ_Θ) for various stability regimes. The curves represent average or typical conditions with the exception of the two outer "very stable" lines, which represent extremes.

The large surface values of σ_Θ for unstable conditions do not decrease very rapidly with height. As in the case of very stable conditions, the greatest lateral fluctuations during a very unstable thermal structure occur with very light winds. As a general rule, for a given insolation condition, increasing wind speeds are associated with profiles of σ_Θ that tend toward neutral stability.

The majority of the trailers in the network recorded very light winds throughout the month. Therefore, the stability distributions had a predominance of high σ_Θ values and, hence, unstable classifications. Those trailers with the highest average winds (and fewest nearby obstacles to the flow) generally had the more reasonable and representative low-level stability class distributions.

```
                                   STABILITY WIND ROSE DIAGRAM

                                      C-B SHALE OIL PROJECT
                            200-FOOT LEVEL    PERIOD( 5/ 1/77 TO  5/31/77)

 STABILITY CLASS = A
                                                        WIND DIRECTION
                           N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL   %
 GROUP MAX SPEED           7    6    7    6    8    6    7    6    7    7    9    9   10    8    8    7
     MPH

                                                                                                         :        0.
    GT   24     :
                                                                                                         :        0.
    18 -  24    :
                                                                                                         :        0.
    12 -  18    :
     7 -  12    :     1         1         2         2         1    3    4    3    3   22   19    2 :   63   5.
     3 -   7    :    66   21   20   18   43   37   13   17   14   22   33   26   58  130  142  129 :  789  68.
    LT     3    :    32   17   29   22   16   10    7   10    5   10    9   16   22   35   38   34 :  312  27.
     TOTAL      :    99   38   50   40   61   47   22   27   20   35   46   45   83  187  199  165 ; 1164
    PERCENT     :    9.   3.   4.   3.   5.   4.   2.   2.   2.   3.   4.   4.   7.  16.  17.  14. :        100.
                ...........................................................................................

                        TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        46(   3.95 %)
```

STABILITY WIND ROSE DIAGRAM

C-B SHALE OIL PROJECT
200-FOOT LEVEL PERIOD(3/ 1/77 TO 3/31/77)

STABILITY CLASS - B

GROUP MAX SPEED MPH			N 16	NNE 14	NE 15	ENE 10	E 9	ESE 13	SE 15	SSE 13	S 16	SSW 17	SW 20	WSW 18	W 16	WNW 17	NW 17	NNW 16		TOTAL	%
GT	24	:																	:		0.
18 -	24	:											4	2					:	6	0.
12 -	18	:	53	10	5			4	7	8	49	90	73	43	50	53	58	52	:	555	30.
7 -	12	:	40	27	26	13	8	14	9	28	85	162	57	54	87	137	137	134	:	1018	54.
5 -	7	:	21	18	6	8	7	12	7	6	6	9	16	9	14	43	33	39	:	254	14.
LT	5	:	4	1	0	0	0	2	3	5	5	5	1	4	6	3	5	6	:	48	3.
TOTAL		:	118	56	37	21	15	32	26	47	145	266	151	112	157	236	233	231	;	1881	
PERCENT		:	6.	3.	2.	1.	1.	2.	1.	2.	8.	14.	8.	6.	8.	13.	12.	12.	:		100.

TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE - 14(0.74 %)

```
                              STABILITY WIND ROSE DIAGRAM

                                 C-B SHALE OIL PROJECT
                      200-FOOT LEVEL     PERIOD( 3/ 1/77 TO  3/31/77)

STABILITY CLASS - C
                                                   WIND DIRECTION
                       N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED       19   17    1    0    4   15   10   16   18   22   23   20   19   19   18   20
   MPH


 GT   24    :                                                                                     :        0.

 18 -  24   :         10                                      1   17   31   11    6    5    3   18 :   102 16.

 12 -  18   :         45   16                   3         7  46   76   56   28   22   28   15   35 :   377 59.

  7 -  12   :          5    3                   0    1    3   5    4    3    3    1    4    8   18 :    58  9.

  3 -   7   :          2    0              1    9    6    6   2    5    4    3    1    4    2    3 :    48  8.

 LT    3    :          2    2    2         1    4    6    1   1    4    5    6    6    3    5    3 :    51  8.

   TOTAL    :         64   21    2    0    2   16   13   17  55  106   99   51   36   44   33   77 ;   636

   PERCENT  :        10.   3.   0.   0.   0.   3.   2.   3.  9.  17.  16.   8.   6.   7.   5.  12. :      100.
                  ...........................................................................................

                      TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        18(   2.83 %)
```

```
                                 STABILITY WIND ROSE DIAGRAM

                                    C-b SHALE OIL PROJECT
                          200-FOOT LEVEL     PERIOD( 3/ 1/77 TO  3/31/77)

 STABILITY CLASS - D
                                                              WIND DIRECTION
                         N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW  TOTAL   %
GROUP MAX SPEED         28    25     7     8    14    14    18    23    37    40    34    28    27    35    32    39
    MPH


    GT    24     :      14     2                                       147   292   149    14     4     9     8    59 :   698 25.

   16 -   24     :     107    17                             1     6   100   324   229    51    40    26    22   107 :  1030 37.

   12 -   16     :      25     6                 6     8     8     6    26   112    36    28    27    16    12    18 :   334 12.

    7 -   12     :       2     6     1     2     1    12    11    25    16    24    15    12    10    16    16    19 :   188  7.

    3 -    7     :       8    10     2     4     8    23    22    18    39    38    19     7     8    39    24    10 :   279 10.

    LT     5     :       9     4     4     2     6     4    11    15    16    25    16    17    27    28    25    13 :   222  8.

     TOTAL       :     165    45     7     8    21    47    53    70   344   815   464   129   116   134   107   226 :  2751

    PERCENT      :      6.    2.    0.    0.    1.    2.    2.    3.   13.   30.   17.    5.    4.    5.    4.    8. :        100.
                    .................................................................................................................

                              TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -           54(    1.96 %)
```

```
                                        STABILITY WIND ROSE DIAGRAM

                                           C-B SHALE OIL PROJECT
                                 200-FOOT LEVEL    PERIOD( 3/ 1/77 TO  3/31/77)

 STABILITY CLASS = F
                                                              WIND DIRECTION
                           N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED            6   13    7    8   14   14   16   18   21   20   17   16   15   15   16   15
   (MPH)


   GT   24    :                                                                                     :         0.

   18 -  24   :                                            2   11   19                              :    32  2.

   12 -  18   :                2              3   10   41   35   66  118   41    8    4    2    1    4 :   335 22.

    7 -  12   :                6    1    3    7   15   50   80   31   67   35   20   12   10   15    4 :   356 24.

    3 -   7   :           2    1    1    6   24   23   47   42   49   61   49   44   28   37   20    5 :   459 31.

   LT    3    :           5   10    6    2   15   17   28   27   34   44   24   24   21   22   21   10 :   310 21.

     TOTAL    :           7   19    8   11   49   65  166  186  191  329  149   96   65   71   57   23 ;  1492

    PERCENT   :          0.   1.   1.   1.   3.   4.  11.  12.  13.  22.  10.   6.   4.   5.   4.   2. :       100.
                 ..............................................................................................

                           TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -         83(   5.56 %)
```

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```
                                         STABILITY WIND ROSE DIAGRAM

                                            C-b SHALE OIL PROJECT
                                200-FOOT LEVEL    PERIOD( 3/ 1/77 TO  3/31/77)

STABILITY CLASS - 1
                                                          WIND DIRECTION
                        N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL   %
GROUP MAX SPEED         2    3    1    1    4    4   13   16   15   15   17    9    4    5    7    6
      MPH

   GT   24     :                                                                                 :        0.
   18 -  24    :                                                                                 :        0.
   12 -  18    :                                 1   18    5   12   47                           :    83 11.
    7 -  12    :                                11   40   38   34   24    1              1       :   149 21.
    3 -   7    :             1              3   11   30   32   88   57   38    6    4    2    3    4 :   279 39.
   LT    3     :        3    1    3    3   10   14   25   25   43   45   13    7    9    4    6    0 :   211 29.
    TOTAL      :        3    2    3    3   13   25   67  115  174  148  122   14   13    6   10    4 :   722
   PERCENT     :       0.   0.   0.   0.   2.   3.   9.  16.  24.  20.  17.   2.   2.   1.   1.   1. :      100.
                 ..................................................................................................

                  TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -       62(   8.59 %)
```

```
                                        STABILITY WIND ROSE DIAGRAM

                                          C-B SHALE OIL PROJECT
                              200-FOOT LEVEL    PERIOD( 3/ 1/77 TO  3/31/77)

 STABILITY CLASS - TOTAL
                                                            WIND DIRECTION
                          N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW   TOTAL  %
 GROUP MAX SPEED         28    25    13    10    14    15    18    23    37    40    34    28    27    35    32    39
      MPH


    GT    24     :       14     2                                         147   292   149    14     4     9     8    59 :  698  8.

    18 -  24     :      117    17                               1     8   112   360   264    64    46    31    25   125 : 1170 13.

    12 -  18     :      123    34     5           9    25    57    74   192   408   253   107   103    99    86   109 : 1684 19.

     7 -  12     :       48    42    29    18    18    41    84   176   176   294   138    93   113   189   196   177 : 1832 21.

     5 -   7     :       99    51    29    36    86   115   125   121   198   212   159    95   113   255   224   190 : 2108 24.

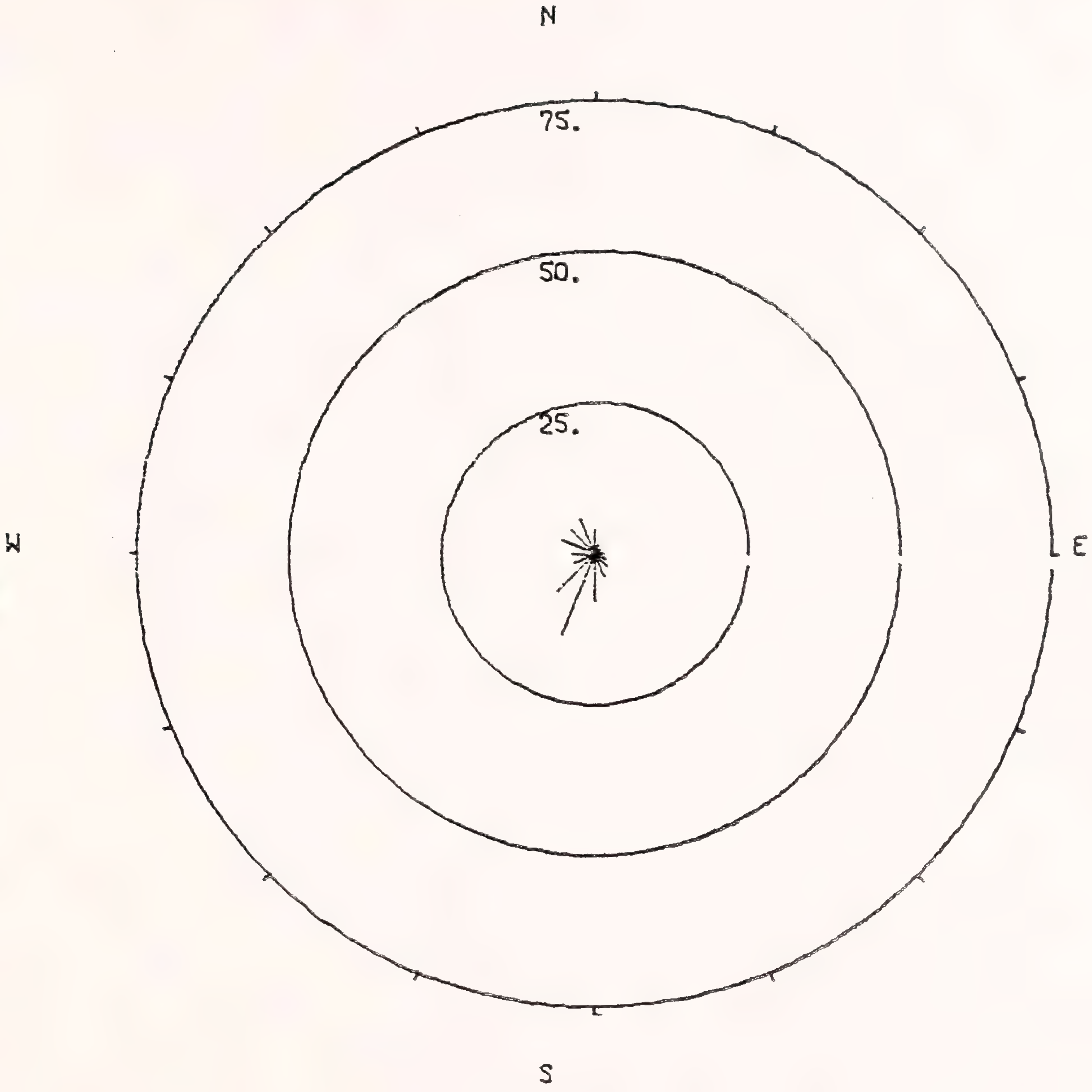
    LT     5     :       62    39    48    33    51    53    77    80    97   128    69    76    95   102   108    76 : 1194 14.

     TOTAL       :      463   185   111    87   164   234   344   459   922  1694  1032   449   474   685   647   736 : 8686

     PERCENT     :       5.    2.    1.    1.    2.    3.    4.    5.   11.   20.   12.    5.    5.    8.    7.    8. :       100.
                    ............................................................................................................

                              TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -         277(   3.19 %)


                                   PERCENTAGE OF A      STABILITY -  13.40 %
                                   PERCENTAGE OF B      STABILITY -  21.66 %
                                   PERCENTAGE OF C      STABILITY -   7.32 %
                                   PERCENTAGE OF D      STABILITY -  31.67 %
                                   PERCENTAGE OF E      STABILITY -  17.18 %
                                   PERCENTAGE OF F      STABILITY -   8.31 %
```



PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 200 FOOT LEVEL

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RADIAN REPORT -

RADIAN
CORPORATION

DCN 77-100-152-03

AIR MONITORING REPORT
FOR
C-b SHALE OIL PROJECT
APRIL 1977
REPORT NO. 32

1 July 1977

Presented to:
C-b Shale Oil Project
United Bank Tower
Denver, Colorado 80202

Prepared by:
Radian Staff

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Nitric Oxide (NO) ---------- -1363
Nitrogen Dioxide (NO_2) ---------- -1363
Sulfur Dioxide (SO_2) ---------- -1364
Pyranometer ---------- -1364
Hydrogen Sulfide ---------- -1364
Total Hydrocarbons ---------- -1365
Methane ---------- -1365
Non-Methane Hydrocarbons ---------- -1365
Carbon Monoxide ---------- -1366
Ozone ---------- -1366
Barometric Pressure ---------- -1366
Total Precipitation ---------- -1367
Particulate ---------- -1367
Wind Speed ---------- -1368
Wind Direction ---------- -1369
Relative Humidity ---------- -1370
Temperature ---------- -1371

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Nitrogen Dioxide (NO_2) ---------- -1375
Sulfur Dioxide (SO_2) ---------- -1376
Pyranometer ---------- -1377
Hydrogen Sulfide ---------- -1378
Total Hydrocarbons ---------- -1379
Methane ---------- -1380
Non-Methane Hydrocarbons ---------- -1381
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Nitric Oxide----------------------------------- -1390
Nitrogen Dioxide------------------------------- -1390
Sulfur Dioxide--------------------------------- -1391
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Total Hydrocarbons----------------------------- -1392
Methane-- -1393
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Carbon Monoxide------------------------------- -1408
Ozone--- -1409

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Nitric Oxide----------------------------------- -1412
Nitrogen Dioxide------------------------------- -1413
Sulfur Dioxide--------------------------------- -1414
Hydrogen Sulfide------------------------------- -1415
Total Hydrocarbons----------------------------- -1416
Methane-- -1417
Non-Methane Hydrocarbons----------------------- -1418
Carbon Monoxide-------------------------------- -1419
Ozone-- -1420
Hourly Total Precipitation--------------------- -1421
Wind Speed
  8 feet--------------------------------------- -1422
  30 feet-------------------------------------- -1423
  100 feet------------------------------------- -1424
  200 feet------------------------------------- -1425
Wind Direction
  8 feet--------------------------------------- -1426
  30 feet-------------------------------------- -1427
  100 feet------------------------------------- -1428
  200 feet------------------------------------- -1429

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8 feet---------------------------------- II B-1430
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100 feet---------------------------------- -1432
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200 feet---------------------------------- -1434
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30 feet---------------------------------- -1436
100 feet---------------------------------- -1437
200 feet---------------------------------- -1438
Temperature
8 feet---------------------------------- -1439
30 feet---------------------------------- -1440
100 feet---------------------------------- -1441
200 feet---------------------------------- -1442
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Total Hydrocarbons------------------------------ -1455
Methane------------------------------ -1456
Non-Methane Hydrocarbons------------------------------ -1457
Carbon Monoxide------------------------------ -1458
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Wind Speed
    8 feet------------------------------ -1461
    30 feet------------------------------ -1462
    100 feet------------------------------ -1463
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    8 feet------------------------------ -1465
    30 feet------------------------------ -1466
    100 feet------------------------------ -1467
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    8 feet------------------------------ -1469
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Class E--------- -1522
Class Total----- -1523
100-foot level - Stability Class A--------- -1524
Class B--------- -1525
Class C--------- -1526
Class D--------- -1527
Class E--------- -1528
Class Total----- -1529

LIST OF TABLES (contd) Page

APPENDIX A - STABILITY WIND ROSE DIAGRAMS

200-foot level - Stability Class A---------- II B-1530
Class B---------- -1531
Class C---------- -1532
Class D---------- -1533
Class E---------- -1534
Class Total----- -1535
Percentage of Occurrence of Wind Direction for
8-foot level-------------------------------- -1536
30-foot level-------------------------------- -1537
100-foot level-------------------------------- -1538
200-foot level-------------------------------- -1539

I. GENERAL DESCRIPTION OF AIR MONITORING PROGRAM

Radian Corporation, under contract to the C-b Oil Shale Project, is performing the data compilation and reporting of air quality and meteorological data at one monitoring site in Northwest Colorado. The site measures and records concentrations of particulates, sulfur dioxide, oxides of nitrogen, hydrogen sulfide, total hydrocarbons, methane, and carbon monoxide. A 200-foot meteorological tower provides wind direction, wind speed, temperature, and relative humidity data at four levels (8, 30, 100, and 200 feet). Other meteorological variables measured at the tower site are insolation, barometric pressure, and precipitation.

Figure I shows the configuration of the monitoring station. The station provides a sturdy and protective covering for the monitoring equipment.

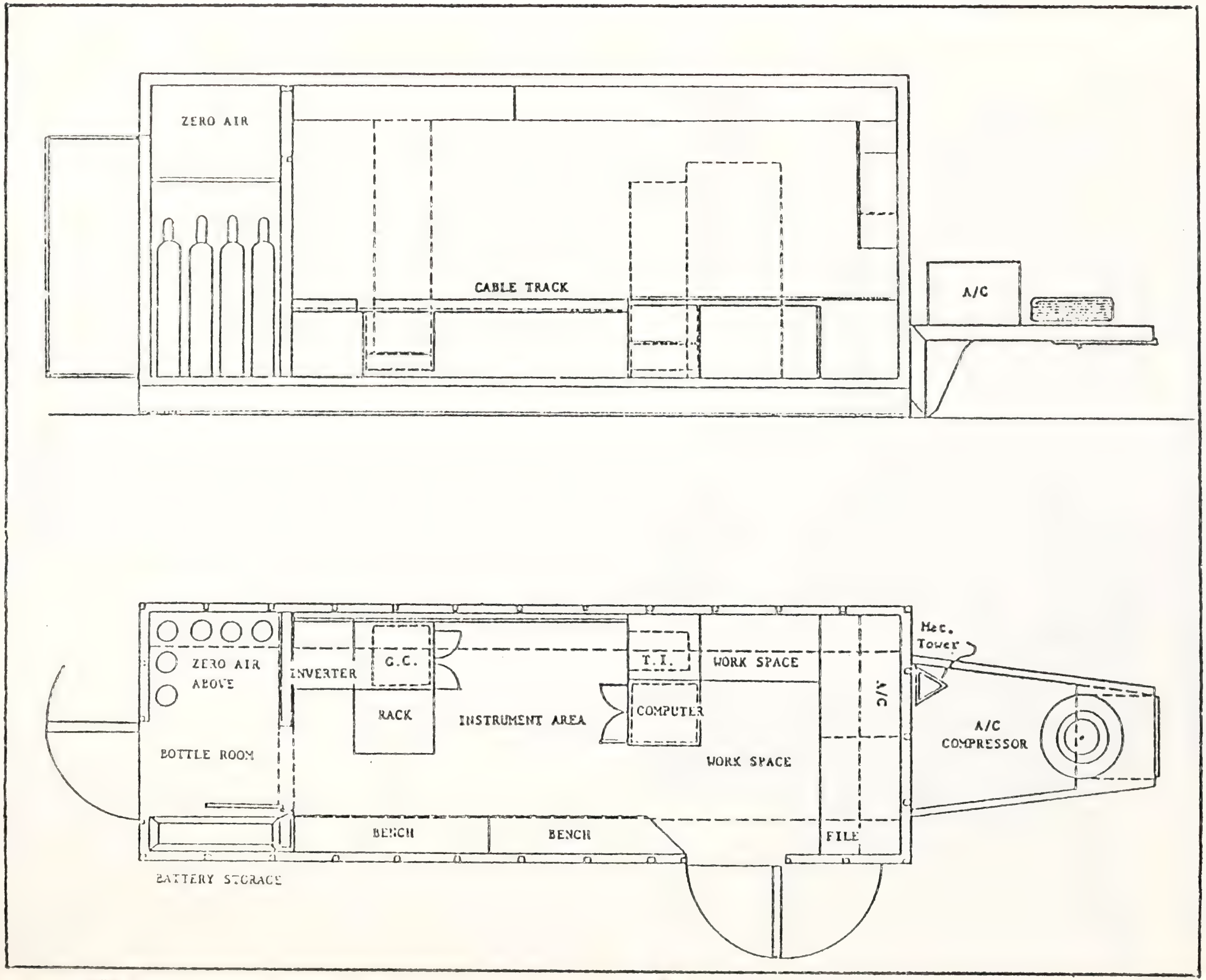
ZERO AIR
CABLE TRACK
A/C
ZERO AIR
ABOVE
BOTTLE ROOM
INVERTER
G.C.
RACK
INSTRUMENT AREA
T.I.
COMPUTER
WORK SPACE
WORK SPACE
A/C
FILE
Met.
Tower
A/C
COMPRESSOR
BENCH
BENCH
BATTERY STORAGE

FIGURE I. CONFIGURATION OF MONITORING STATION

II. DESCRIPTION OF INSTRUMENT SYSTEMS

A. Air Quality Instrumentation

Nitrogen oxides are measured with a Meloy Model NA520 analyzer. This dual-channel analyzer is based on the chemiluminescent principle and continuously monitors both NO_x and NO. A subtraction circuit in the instrument provides a continuous NO_2 output, but is not used in Radian's system. NO_2 is calculated once a second by the computer by subtracting the NO value from the NO_x value, thus avoiding any drift which might occur in the NO_2 output of the instrument. This instrument has a minimum detectable sensitivity of 5 ppb (parts per billion) and a linearity of ±1%.

Both sulfur dioxide and hydrogen sulfide are measured with Meloy Model SA185 sulfur analyzers. The hydrogen sulfide analyzer uses a Meloy Model NO_x-1 sulfur dioxide scrubber and the sulfur dioxide analyzer uses a Meloy Model H_2S-1 hydrogen sulfide scrubber. The Model SA185 is a continuous analyzer and utilizes the flame photometric principle of operation. The minimum detectable sensitivity is 5 ppb and the linearity is ±1%.

Ozone is measured with a Meloy Model OA350 analyzer. This instrument, based on the chemiluminescent principle, provides continuous measurement of ozone. The minimum detectable sensitivity is 0.5 ppb and the linearity is ±1%.

Total hydrocarbons, methane, and carbon monoxide are monitored with a Bendix Model 8200 gas chromatograph analyzer. This instrument, which uses a plume ionization detector, has a minimum detectable sensitivity of 5 ppb for all three components. The Model 8200 works on a five-minute cycle, i.e., one air sample is analyzed every five minutes, and the results are displayed for five minutes via a sample and hold circuit.

The air sample is drawn in through a glass cane and manifold supplied by the Ace Glass Company. The system has a 25mm diameter, through which a constant air flow is provided by an air pump rated at 60 cfm at 0" head pressure. The manifold has sampling ports to which 1/4" teflon lines to the instrument are connected. All joints in the sampling system are secured by O-ring compression fittings. The manifold is contained in a heated (100°F) chamber to prevent condensation of moisture. The teflon lines from the manifold to the instruments are insulated with 1/8" wall thickness rubber tubing.

The trailer has four heavy duty high volume particulate samplers (Hi-Vols). Fiberglass filter paper is used for the collection of particulate samples, after which each filter is brought to a controlled humidity before weighing. Each Hi-Vol has a flow recorded to permit correction for changes in air flow as the filter becomes loaded with particulates. Each Hi-Vol runs for a 24-hour period (midnight to midnight) and is turned on and off by the computer. The Hi-Vols, which were manufactured by Radian, were designed following guidelines recommended by the Environmental Protection Agency.

In addition to the normal Hi-Vol particulate samples, a duplicate Hi-Vol sample is collected every sixth day on special filter paper for trace element analysis. Once each quarter these samples are composited and analyzed for gross radioactivity and trace element content.

B. Calibration Procedures

The trailer contains a Meloy Model RAD-1 calibration unit. This instrument provides a zero air supply, SO_2 span gas from an SO_2 permeation tube, and NO span gas obtained by precisely

diluting bottled NO span gas. The computer-controlled calibration of all instruments is automatically performed once a day. Each instrument is first switched to zero; the computer monitors the output of each channel and takes a new zero reading after a stable zero signal has been reached. This zero reading is compared by the computer to the zero reading obtained 24 hours before, and if a drift in excess of 10 ppb has occurred, an excess zero drift light for the channel in question is turned on on the System Status Panel. Next, span gas is supplied to each channel and the computer decides when a stable span value has been reached. This value is recorded and compared to the previous day's value. An excess span drift light on the System Status Panel is turned on if a drift exceeding 10 ppb occurs. The instruments are then returned to the monitor mode and after two minutes the computer resumes data taking.

The bottled NO gas used at each site was obtained from Precision Gas Products. Pre-purified grade hydrogen is used in the SO_2 analyzers.

The SO_2 permeation tubes were manufactured by Metronics Association, Inc. Their output has been verified by comparison to the output of National Bureau of Standards tube 10-42. Both SA185 analyzers in each trailer are calibrated with the SO_2 from the permeation tube. This instrument responds to the number of sulfur atoms per molecule; thus, SO_2 can be used to calibrate both the H_2S and SO_2 monitors.

The Model OA350 ozone analyzer has its own calibration system which provides a zero check and a span check. The ozone calibration system is verified by comparison to a calibrated ozone generator maintained in Radian's laboratory in Rifle.

The Model 8200 total hydrocarbon, methane, and carbon monoxide analyzer is calibrated with undiluted span gas obtained from AirCo's Rare and Specialty Gas Division. This span gas contains methane and carbon monoxide in air, the methane being used to calibrate both the total hydrocarbon channel and the methane channel. The Model 8200 is zeroes with air from a Bendix Model 8834 zero air unit. In addition, the instrument is electronically re-zeroed at the start of every five-minute cycle.

The Hi-Vol particulate samplers were calibrated using a Calibration Kit from General Metal Works.

C. Data Acquisition System

The basis of the data acquisition system is a Data General NOVA 1200 minicomputer. The NOVA, which has a basic cycle time of 1.2 μsec, is equipped with automatic program load and power fail/automatic restart features. The computer utilizes 16K 16-bit words of core memory. Analog-to-digital conversion is accomplished via an ADC built by Radian Corporation. The input/output unit for the system is Texas Instrument's KSR 733 keyboard/printer. This model teletype provides keyboard entry and hardcopy printed output. The data are also recorded on a cassette magnetic tape unit with three drives. The cassette unit is utilized for program storage and loading as well as for recording. To reduce wear on mechanical parts, the power to the teletype and cassette units is turned on only when the unit(s) is (are) to be used. Several important functions in the instruments as well as in the computer and the trailer are monitored by means of lights on a System Status Panel. These data lights are written onto cassette tape to monitor the complete status of the system every five minutes. The Data Acquisition System also monitors the presence of 100V power from the power lines. In its absence, the computer, which is powered by batteries, switches all trailer

systems to battery-provided power. If the line voltage is restored before the batteries are discharged to a specified level, the trailer system is switched back to line power.

D. Meteorological Instrumentation

200-Foot Meteorological Tower

The tower has instrumentation at four levels: 8 feet, 30 feet, 100 feet, and 200 feet. At all four levels, there are: wind speed, wind direction, and temperature and relative humidity sensors in a power-aspirated radiation shield. Temperature difference thermistors (also in power-aspirated radiation shields) and their associated circuitry take lapse rate measurements for the 30-foot to 100-foot layer and the 30-foot to 200-foot layer. In addition, this site has a Precision Spectral Pyranometer, a barometer, and a tipping bucket rain/snow gage.

The wind direction and speed apparatus used at each measurement level of the tower is the Model 1074-2 wind sensor by Meteorological Research, Inc. (MRI). This sensor has a 540° potentiometer for wind direction and a light chopper for wind speed. This sensor is rugged, with an all-weather coaxial cup and damped vane assembly. The prototype model has been in operation for years under the most demanding weather conditions, performing continuously with the utmost reliability. The wind sensors on the tower have been specially treated with a black paint which will promote warming of the exposed surfaces of the sensor and thereby reduce ice and snow accumulations on the moving parts of the apparatus. The specifications on the Model 1074-2 are as follows:

Wind Speed

- Starting Threshold: 0.75 mph.
- Response Distance: 18 feet (63% recovery).
- Flow Coefficient: 7.9 feet/Revolution.
- Accuracy: ±0.4 mph or 1% (whichever is greatest)

Wind Direction

- Starting Threshold: 0.75 mph.
- Delay Distance: 4 feet (50% recovery).
- Damping Ratio: 0.5 to 0.6.
- Accuracy (540° system): ±1%.
- Range: 0° to 540°.

The relative humidity and temperature sensors are mounted within a power-aspirated radiation shield at each tower level. All aspirators and sensors are of the Model 840 Series by MRI. The aspirated shielded housing is designed to provide maximum radiation protection to the sensor. Ambient air is drawn into the shield and across the sensors at approximately 15 feet per second. This intake air is essentially sampled from a hemispherical space which is approximately 3-inch radius from the tube opening. Speed of the incoming air at the perhiphery of this hemisphere is approximately 1 mph.

The temperature sensor is comprised of a dual thermistor and resistor network. This circuit provides a linear resistance change with an air temperature change. The relative humidity sensor is placed alongside the temperature elements inside the shield where it is exposed to a constant flow of air. Circulation to both sides of the sensing element produces accurate monitoring with a good response time. The specifications on the sensing elements are as follows:

Temperature

- Accuracy: ±0.25° C.
- Range: -50°C to +50° C.

Humidity

- Accuracy: ±3.0% RH.
- Range: 0% to 100% Relative Humidity.

Measurements of temperature difference are taken for two layers, the 30-foot to 100-foot and the 30-foot to 200-foot layer. The thermistors and circuitry used for these measurements are separate from the thermistors measuring air temperature. The use of separate thermistors and circuitry to measure ΔT allows for much greater accuracy and resolution in the measurements, which is necessary for stability assessments. Two ΔT thermistors are at the 30-foot level, one is at the 100-foot level, and one is at the 200-foot level. All of these ΔT thermistors are mounted within power-aspirated radiation shields. The specifications on the ΔT instrumentation are as follows:

- Accuracy: ±0.1°C.
- Range of ΔT Circuit (Lower Level-Upper Level): +9F° to -9F°.

All instrumentation, except at the ground level, is mounted at the end of 12-foot retractable booms. These booms are 3-inch box beams which are on rollers and can be retracted to the instrument platforms for instrument maintenance.

The meteorological tower itself is a 200-foot Rohn Model 80 Guyed Tower, designed for 40 pounds per square foot wind load with ½" of radial ice per EIA Standard RS-222-B, to

support four levels of meteorological equipment. The material consists of tower sections with a tapered base, three retractable booms 12-feet long, three outside work platforms, an inside ladder for climbing, two base ground kits and one anchor ground kit. The cable-type Safety Climbing Device consists of a cable and attachment mechanisms with a locking sleeve and safety belt. The tower is lighted and painted according to FAA specifications.

The signals from the tower instrumentation are fed from multiple signal cables into transmitters mounted at the base of the tower. After signals have been converted to analog signals, they are fed into a junction box, also at the tower base, where they are assimilated into one coaxial cable. The signals are then run underground within 3" PVC conduit to the A-to-D assembly, where they are processed. The transmitters are shielded and insulated from the elements. The signal cable is run underground in PVC conduit in order to minimize damage from the weather or from various rodents in the region.

The auxiliary equipment at the tower site consists of a heated tipping bucket rain/snow gage, an analog barometer, and a Precision Spectral Pyranometer. The rain/snow gage is the Model P511-E unit by Weather Measure. In the case of this gage, the durability and reliability of a tipping bucket gage are combined with heavy-duty electric heaters to make this an all-purpose precipitation sensor. This gage may be used to measure both snowfall and rainfall. An insulating cover of poly-vinyl chloride and a thermostatic control insure the proper gage temperature. The thermostatic control is adjustable from 0 to 35°C. Snow falling into the inlet funnel is melted. The resulting water (from rain or snow) drains into a precision tipping bucket mechanism which activates a mercury switch each time the bucket fills and tips. The gage is constructed of durable corrosion-resistant materials to provide many years of service. The

specifications for this gage are as follows:

- Orifice: 8 inches.
- Calibration: 0.01 inch.
- Accuracy: 0.5% (Calibrated at 0.5 in/hr).
- Sensor: Chrome-plated tipping buckets.
- Switch: Mercury, 0.1-second closure.
- Heat Control: Thermostat adjustment, 0 to 35°C.

The barometer is the B242 Analog Output Barometer by Weather Measure. This barometer provides an output voltage that is linearly proportional to pressure. The specifications on this instrument, which is mounted inside the monitoring trailer at the site, are as follows:

- Range: Specially designed for the 100 millibar interval from 725 millibars to 825 millibars.
- Resolution: Infinite.
- Linearity: ±0.5 millibar, over the 100 millibar interval.

The pyranometer at the site is the Eppley Precision Spectral Pyranometer. This instrument is used for the measurement of sun and sky radiation totally or in defined wavelength bands. The pyranometer is levelled and mounted atop a wooden stand 4½ feet from the ground surface. Care has been taken to eliminate the effects from all outside influences, such as reflection or shadows, on the pyranometer. The instrument characteristics are as follows:

- Sensitivity: 5 mv. per cal/cm°/min.
- Independence: 300 ohms.
- Temperature dependence: Sensitivity constant to within ±1 percent over the ambient temperature range from -20 to +40°C.

- Linearity: Response linear up to intensities of 4 $cal/cm^2/min$.
- Response time: 1 second (i/e signal).

All instrumentation is factory-calibrated and is field-calibrated at various intervals. Sling psychrometers are used to calibrate the humidity sensors; known temperatures and/or resistances are used to calibrate the thermistors; and an rpm calibrating unit is used to calibrate the anemometers. The wind direction instrumentation is aligned to true north (reference direction) by means of a surveyor's transit.

III. MICROMETEOROLOGICAL AND TERRAIN FEATURES

The Piceance Creek Valley and C-b Shale Oil Tract are situated such that many microscale meteorological phenomena affect the region where the ambient air monitoring unit is located. Trailer 023 and its associated 200-foot meteorological tower are located atop a plateau to the south of the valley, high enough to be affected mostly by gradient flow conditions.

The elevation at the meteorological tower site (Trailer 023) is 6940 feet above sea level. The largest gradients in elevation in this area, of course, occur at the Piceance Creek Valley walls. However, the northern valley walls are slightly steeper than those at the southern boundary of the valley, which then slopes upward gradually toward the C-b Tract. The Piceance Creek Valley decreases in elevation from east to west in this area, so that nighttime katabatic cold-air drainage flows advect from east to west.

Site 023 is approximately 2.5 miles south of the Piceance Creek Valley. This location is relatively high compared to its surroundings, with the nearest point having an elevation greater than 7000 feet being .5 miles to the south of the tower. The tower itself is on the top of a small knoll located between Scandard and Sorghum Gulches. Because of its location and the irregularities of the surrounding terrain, meteorological patterns are varied here.

Wind instrumentation is mounted at four levels of the meteorological tower: 8 feet, 30 feet, 100 feet, and 200 feet. The top level of the tower generally remains in gradient wind flow. That is, the winds at that level are normally generated

by synoptic-scale features and are usually separated from terrain features and micrometeorological circulations. Occasionally, a weak anabatic flow influence is experienced. However, such is not the case with the three lowest measurement levels. To varying degrees, these levels are influenced by both the katabatic and anabatic circulation cells. However, when strong pressure gradient forces exist in the region and the synoptic-scale wind flow is strong, all four tower levels will reflect a gradient wind flow as the winds increase in strength and height.

The terrain atop the plateau is generally barren and fairly rugged, with a few scattered small trees. The topsoil dries rapidly and is very fine, resulting in blowing dust when dry, windy conditions exist. In the Piceance Creek Valley, the terrain is fairly grassy and flat, with steep valley walls on either side. Surface winds are normally rather light in this valley unless channeling effects occur.

During clear nights with rather light pressure gradient-induced winds, rapid radiational cooling will occur in the region because of the barren nature of the terrain and the generally dry character of the air in this portion of the country. As a result, the diurnal range of temperatures will be extremely large. Because of the katabatic flow in the valley, nighttime temperatures will generally be lower in the valley than on the plateau. During the winter, especially, temperatures in the valley may be 20F° lower than they are on the plateau during the early morning hours.

IV. OPERATING TIME ANALYSIS FOR EACH SITE

This section presents the operating statistics for each of the major subsystems contained in the monitoring station. Table I shows the specific number of hours that each of these subsystems were inoperative for the month. The column labeled "DIGITIZING SYSTEM" indicates the entire data acquisition system; therefore, downtime hours appearing in this column means total loss of data. These instances include, in addition to computer downtime, power failures, no power available, and self-automated shutdown periods such as during air conditioner malfunctions.

Calibration time is not considered to be downtime and is, therefore, not included in the downtime figures. The amount of time used in calibrating the instruments is given at the bottom of the downtime analysis table and is reported as total calibration hours for each channel for the entire month. As is evident in the calibration figures, channels can be calibrated independently of one another. No calibration time is given for particulate monitoring since Hi-Vol calibration occurs infrequently and only during the off-duty cycle for each Hi-Vol while another Hi-Vol is taking data.

TABLE I.
DOWNTIME HOURS FOR C-B SHALE OIL PROJECT

SITE 023

DATE	DIGITIZING SYSTEM	NOX	NO	SO2	WS	WD	RH	TOUT	PYR	H2S	VOLT	THC	CH4	CO	O3	PRES	RAIN	PART
4/ 1	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.	4.	4.	1.	0.	0.	0.	24.
4/ 2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	16.	0.	0.	0.	0.
4/ 3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	24.	0.	0.	0.	0.
4/ 4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	7.	7.	24.	0.	0.	0.	0.
4/ 5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	7.	7.	16.	0.	0.	0.	0.
4/ 6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	11.	0.	0.	0.	0.
4/ 7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
4/ 8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
4/ 9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
4/10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
4/11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
4/12	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	14.	0.	0.	0.	0.
4/13	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.
4/14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
4/15	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/16	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/17	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
4/18	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
4/19	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.	0.	0.	0.
4/20	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	0.	0.	0.	0.	0.
4/21	2.	8.	8.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
4/22	0.	9.	9.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.
4/23	0.	0.	0.	0.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/24	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/25	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	20.	0.	0.	0.	24.
4/26	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.	0.	0.	0.	24.
4/27	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	21.	0.	0.	0.	0.
4/28	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.	0.	0.	0.	0.
4/29	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.	0.	0.	0.	0.
4/30	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.	0.	0.	0.	0.
CAL TIME		13.	13.	12.	0.	0.	0.	0.	0.	14.	0.	12.	12.	12.	10.	0.	0.	

TABLE I.
DOWNTIME HOURS FOR C-B SHALE OIL PROJECT

SITE 023

DATE	DIGITIZING SYSTEM	WS1	WD1	RH1	TMP1	WS2	WD2	RH2	TMP2	WS3	WD3	RH3	TMP3	WS4	WD4	RH4	TMP4	DT1	DT2
4/ 1	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/ 2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/ 3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/ 4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/ 5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/ 6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/ 7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/ 8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/ 9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/12	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/13	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/15	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/16	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/17	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/18	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/19	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/20	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/21	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/22	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/23	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/24	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/25	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/26	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/27	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/28	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/29	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4/30	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CAL TIME		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TABLE I.
DOWNTIME HOURS FOR C-B SHALE OIL PROJECT

SITE 023

DATE	BWS1	HWD1	VWD1	BWS2	HWD2	VWD2	BWS3	HWD3	VWD3	WSD1	WSD2	WSD3	WSD4	HSD1	VSD1	HSD2	VSD2	HSD3	VSD3
4/ 1	24.	24.	24.	24.	24.	24.	0.	0.	0.	24.	24.	24.	24.	24.	24.	24.	24.	24.	0.
4/ 2	24.	24.	24.	24.	24.	24.	0.	0.	0.	24.	24.	24.	24.	24.	24.	24.	24.	24.	0.
4/ 3	24.	24.	24.	24.	24.	24.	0.	0.	0.	24.	24.	24.	24.	24.	24.	24.	24.	24.	0.
4/ 4	24.	24.	24.	24.	24.	24.	0.	0.	0.	14.	14.	14.	14.	24.	24.	24.	24.	14.	0.
4/ 5	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/ 6	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	1.	0.
4/ 7	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/ 8	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/ 9	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/10	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/11	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/12	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/13	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/14	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/15	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/16	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/17	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/18	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/19	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/20	23.	23.	23.	23.	23.	23.	0.	0.	0.	0.	0.	0.	0.	23.	23.	23.	23.	0.	0.
4/21	22.	22.	22.	22.	22.	22.	10.	0.	0.	0.	0.	0.	0.	22.	22.	22.	22.	0.	0.
4/22	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/23	23.	23.	23.	23.	23.	23.	23.	0.	0.	0.	0.	0.	0.	23.	23.	23.	23.	0.	0.
4/24	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/25	23.	23.	23.	23.	23.	23.	23.	0.	0.	0.	0.	0.	0.	23.	23.	23.	23.	0.	0.
4/26	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/27	22.	22.	22.	22.	22.	22.	22.	0.	0.	0.	0.	0.	0.	22.	22.	22.	22.	0.	0.
4/28	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/29	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
4/30	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
CAL TIME	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

V. MONTHLY METEOROLOGICAL SUMMARY

A. Summary of the Meteorological Conditions over North America during April 1977

April 1977 was warmer than normal for all but the most southern part of the United States. The Southeast and Southwest experienced near normal temperatures. Variable monthly precipitation totals characterized most sections of the country. The polar front jet stream weakened and was oriented much further north than during the winter months preceding April. The mean long-wave circulatory pattern for April was nearly zonal. This differs from the ridge-trough patterns during the preceding winter months.

The long-wave circulation was zonal on the 1st, from the 5th through the 9th, and from the 27th through the 29th. Split flow occurred on the 13th, the 15th through 17th, and from the 21st through the 23rd. Meridional flow occurred from the 2nd through the 4th, from the 10th through the 12th, on the 14th, from the 18th through the 20th, from the 24th through the 26th, and on the 30th.

The frequency of extratropical low pressure systems was normal during April. These low pressure systems mostly affected the region from the Rockies eastward through New England. The dates and locations of these low pressure systems were as follows:

1st:	Rockies
2nd:	Rockies, Great Plains, Great Lakes
3rd:	Great Plains, New England
4th:	Great Plains, Great Lakes
5th:	Great Lakes, Atlantic Seaboard, New England
7th:	Great Lakes
8th:	Great Lakes, New England, Pacific Northwest West Coast

8th:	Great Lakes, New England, Pacific Northwest West Coast
11th:	Rockies
15th:	Rockies
17th:	Great Plains
18th:	Rockies
19th:	Rockies
20th:	Great Plains
22nd:	Southeast, Great Lakes
23rd:	Great Lakes, Atlantic Seaboard
24th:	Great Lakes, Atlantic Seaboard, New England
25th:	New England
26th:	New England
27th:	Great Lakes
28th:	Great Lakes, New England, Great Plains

On a sectional basis, the following temperature and precipitation anomalies occurred during April:

Section	Temperature	Precipitation
Northeast	Slightly above normal	Slightly above normal
Atlantic Seaboard	Above normal	Near normal
North Central	Much above normal	Variable; mostly below normal
Central	Above normal	Slightly below normal
Southeast	Near normal	Variable
Southwest	Near normal	Much above normal
Rockies	Much above normal	Below normal
West and Pacific Northwest	Above normal	Very much below normal

B. Summary of the Meteorological Conditions in Northwestern and West Central Colorado during April 1977

Grand Junction, Colorado, sixty miles to the south-southwest of the Tract C-b, received a total of 0.54 inch of precipitation during April, which is 0.25 inch below the monthly normal of 0.79 inch. Grand Junction received 1.7 inches of snow during April. Measurable precipitation occurred on the 1st, 2nd, 11th, 12th, 13th, 19th, and the 28th. The region received 77 percent of the possible monthly sunshine. Sky cover by cloudiness averaged 5.1 out of a possible 10 during the daylight hours and 4.4 out of a possible 10 during the entire month. The region had nine clear days, twelve partly cloudy days, and nine cloudy days during the month.

Air mass changes were less frequent during April than March. Only four frontal passages occurred during April as the polar front jet stream weakened and moved further north. Transport winds over the region as a whole were approximately the same strength as those during March. Maritime polar cold frontal passages occurred on the 10th, 14th, and the 18th. A continental polar cold frontal passage occurred on the 2nd.

C. Summary of the Meteorological Conditions in the Oil Shale Tract C-b Region during April 1977

The northward movement of the polar front jet stream was responsible for the decreased frequency of cold frontal passages during April. Precipitation occurrences were as numerous during April as March. Precipitation occurred on the 2nd, 11th, 12th, 13th, 15th, 19th, and the 27th. Temperatures in the Tract C-b region were above normal during April.

Four cold frontal passages occurred during April. Maritime polar cold frontal passages occurred on the 10th, 14th, and the 18th. A continental polar cold frontal passage occurred on the 2nd.

The monthly average temperatures recorded at the meteorological tower during April were: 42.0°F at 8 feet; 43.4°F at 30 feet; 43.0°F at 100 feet; and 42.3°F at 200 feet. These averages are approximately 16°F higher than those recorded in March. The warmest days of the month were the 9th, 10th, the 23rd through the 26th, and the 29th and 30th. The coolest days were the 1st through the 3rd, and the 19th. The highest temperature recorded at the meteorological tower during April was 69°F at the 8-foot level on the 30th. The coldest temperature recorded at the meteorological tower was 11°F at the 200-foot level on the morning of the 3rd.

Monthly average relative humidities during April were approximately the same as those in March in the Tract C-b region. This similarity can be attributed to increases in monthly average temperature and moisture. At the meteorological tower, the monthly average relative humidities were: 67.2 percent at 8 feet; 66.7 percent at 30 feet; 68.4 percent at 100 feet; and 66.4 percent at 200 feet. These relative humidities correspond to dew points of 32°F, 33°F, 33°F, and 32°F, respectively. The most humid days of the month were the 2nd, 12th, 15th, 16th, and the 19th. The driest days were the 9th, 10th, 22nd, and the 23rd.

Wind speeds on the meteorological tower during April were weaker on the average than the winds that prevailed during March. Resultant wind vectors at the meteorological tower during March were as follows: 241.4 degrees at 1.5 miles per hour at 8 feet; 231.7 degrees at 2.0 miles per hour at 30 feet; 231.5 degrees at 2.0 miles per hour at 100 feet; and 244.4 degrees at 2.4 miles per hour at 200 feet.

The scalar average wind speeds associated with these resultant wind vectors were 5, 6, 7, and 8 miles per hour, respectively. The Ekman spiral and Ekman effect, i.e., a veering in direction and increase in speed as a function of increasing height above the surface, were in evidence during most of April. A reference to the April wind rose for the meteorological tower indicates that the winds at the 8- and 30-foot levels were primarily southwesterly and south-southwesterly. At the 100- and 200-foot levels, winds were primarily northwesterly with a high percentage of south-southwesterly winds in addition.

The windiest days of the month at the meteorological tower were the 9th, 10th, 14th, and the 18th. The days having the lightest winds were the 5th, 7th, 16th, 21st, 22nd, and the 23rd. The highest five-minute average wind speed recorded at the tower during April was 33 miles per hour at the 200-foot level on the 11th.

Precipitation totals in the Tract C-b Monitoring Network during April were generally below normal. The total number of precipitation occurrences were the same during April as during March.

Only 0.50 inch of precipitation was recorded at the meteorological tower during April. The largest daily precipitation total recorded in the network during April was 0.13 inch on April 15th. The greatest five-minute precipitation total recorded during the month was 0.02 inch (a precipitation rate of 0.24 inch/hour), recorded on the 11th and the 13th. Measurable precipitation (≥.01 inch) was recorded at the meteorological twoer on the 2nd, 11th, 12th, 13th, 15th, 19th, and the 27th. The precipitation on the 11th and 27th was in the form of rain. All other precipitation occurrences were in the form of snow.

The monthly average station pressure during April was 789.3 millibars at the meteorological tower. This reading is 5.4 millibars higher than the March average station pressure of 783.9 millibars. The highest daily average station pressure occurred on the 6th, 7th, 23rd, and the 24th. The lowest daily average station pressures occurred on the 1st and 2nd.

Cloudiness decreased slightly in the Tract C-b region during April, compared to the March cloud cover and insolation statistics. The region received an insolation total of 12,864.5 langleys, which is equivalent to a daily average insolation total of 429 langleys/day. This average is below the normal for April of 540 langleys/day in the Tract C-b region. On a diurnal basis, the greatest solar radiation rates occurred between 1200 and 1300 hours. The greatest daily radiation totals were received on the 8th, 9th, 10th, 14th, 22nd, 23rd, 24th, and the 30th. The lowest daily solar radiation totals were received on the 2nd, 12th, 15th, 19th, and the 27th. The greatest five-minute radiation total received during April was 7.85 langleys (a rate of 1.57 langleys/minute), which occurred on the 13th. The largest hourly insolation total received during April was 81 langleys, which occurred on the 14th between 1200 and 1300 hours and on the 30th between 1100 and 1200 hours.

Because of the progressively increasing solar elevations and the increasingly longer periods of daylight that prevailed during April, the total possible solar radiation which could be received during a day increased monotonically throughout the month.

The slight decrease in cloudiness which affected the Tract C-b during April caused the "very unstable" and "slightly unstable" stability classes to become more common than they had been in March. Using the Pasquill method of stability determination, "D" stability (neutral stability) was the most common stability, occurring during 156 daytime hours, or 40.2 percent of the time. In decreasing order of frequency, "C" (slightly unstable) stability occurred during 146 hours, or 37.6 percent of the time, and "B" (very unstable) stability occurred during 85 hours, or 21.9 percent of the time. "A" (extremely unstable) stability occurred during only one daytime hour.

Using the lapse rate method of stability determination ($\frac{dT}{dZ}$), the "very unstable" ("B"), and neutral ("D") stability classes were the most prevalent during April. In general, stable and/or neutral conditions prevailed during the nighttime hours and unstable and/or neutral conditions prevailed during the day. The following table is a diurnal breakdown of the various stability classes. As one proceeds from "A" to "F", the stability class ranges from extremely unstable to extremely stable. The column labeled "number of occurrences" indicates the number of times a particular stability class occurred during

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LEVEL I $(\frac{dT}{dZ})$ 30 feet to 100 feet

Stability Class/Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	No. of Occurrences
A:	1	1	1	1	1	2	1	11	16	12	6	2	1	2	1	2	3	6	4	2	0	0	1	1	78
B:	2	2	1	2	3	2	3	9	12	15	19	20	15	18	18	15	15	16	12	1	2	2	0	1	205
C:	0	0	1	1	0	0	1	0	1	1	1	2	5	3	2	8	6	5	3	3	2	2	1	4	52
D:	6	3	3	3	4	2	4	8	1	2	4	6	9	7	9	5	6	3	10	11	4	5	5	3	123
E:	6	9	7	5	6	10	7	2	0	0	0	0	0	0	0	0	0	0	1	6	12	7	9	7	94
F:	15	15	17	18	16	14	14	0	0	0	0	0	0	0	0	0	0	0	0	7	10	14	14	14	168

A: extremely unstable
B: very unstable
C: slightly unstable
D: neutral
E: slightly stable
F: extremely stable

LEVEL II $(\frac{dT}{dZ})$ 30 feet to 200 feet

Stability Class/Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	No. of Occurrences
A:	3	3	3	4	2	2	1	10	16	12	6	2	1	2	1	2	3	6	5	2	1	1	1	2	91
B:	2	2	2	2	4	2	4	10	12	15	19	20	15	17	18	15	15	15	9	3	3	3	3	3	213
C:	1	0	1	0	1	2	1	1	1	1	1	2	5	4	2	8	6	6	5	3	3	1	1	2	58
D:	7	6	5	5	3	5	6	5	1	2	4	6	9	7	9	5	6	3	11	11	4	6	5	6	137
E:	10	10	8	7	13	10	10	4	0	0	0	0	0	0	0	0	0	0	0	7	15	12	16	8	130
F:	7	9	11	12	7	9	8	0	0	0	0	0	0	0	0	0	0	0	0	4	4	7	4	9	91

the month on an hourly basis. Level I presents the temperature change versus height values ($\frac{dT}{dZ}$) that were considered between 30 feet and 100 feet. Level II indicates the values that were considered between 30 feet and 200 feet.

Using the standard deviation of the horizontal wind (σ_Θ) method of stability determination, "E" stability was the most common stability classification at the meteorological tower. The stability distributions for the 30-, 100-, and 200-foot levels were similar. The 8-foot level of the tower exhibited higher percentages of the unstable classes because of excessive mechanical turbulence.

The bivane at the 200-foot level of the meteorological tower indicated a pattern of upward vertical motion (negative vertical directions) during April. Upward vertical motion was more pronounced during the daytime hours at the 200-foot level. Upward motions were less pronounced at the 200-foot tower level during the early morning hours. The bivanes at the 30- and 100-foot levels were removed in late March due to instrumentation problems.

The σ_Θ value obtained at the 200-foot level using the bivane compared favorably with the σ_Θ value obtained at that level using the standard wind instrumentation.

VI. DATA PRESENTATION AND SUMMARY

This section includes summaries for various recorded data at the monitoring sites. The data presentations indicate the variability of pollutant concentrations and meteorological parameters with location and time. In addition, the presentations indicate the functional dependence of pollutant concentration with wind direction. All data except suspended particulates (24-hour samples) are sampled once each second, but recorded as five-minute arithmetic averages of the one-second samples. This averaging technique tends to smooth instantaneous maximum values, and is especially evident when comparing wind gusts to local weather bureau data.

Inherent to any data acquisition system is random noise both from the recording instruments and quantization in the analog-to-digital conversion. The lower threshold for all analytical instruments is twice the maximum noise level generated by the instruments. This lower threshold is 5 ppb for all instruments, except for the ozone analyzer, for which it is 0.5 ppb. Therefore, any values appearing in the data presentations that are less than 5 ppb indicate only a trace of pollutant in question and should not be construed to be absolute levels. In addition, the recorded quantity is simply random noise and averages tend toward zero. Thus, when concentrations are below the lower threshold of the analytical instruments they may appear as a zero entry in the data presentation which does not indicate absolute zero concentration.

All pollutant data (except for particulate data) is taken at the monitoring site in integer parts per billion (ppb) but is presented here in micrograms per cubic meter ($\mu g/m^3$)

assuming standard temperature and pressure of 25°C and 760 mmHg (1013.2 millibars), respectively. The scale factors required to convert μg/m³ at standard conditions back to ppb for the various pollutants are given in the following table.

POLLUTANT	TO CONVERT μg/m³ AT 25°C AND 760 mmHg TO ppb MULTIPLY BY
NO_x	.534
NO	.534
NO_2	.534
SO_2	.384
H_2S	.723
THC	1.536
CH_4	1.536
CO	.877
O_3	.512

The units of the meteorological parameters are given in the table. It should be noted here that inside temperature is monitored and recorded as a functional part of the system but is not presented in this report.

Table III displays the monthly statistics for each monitoring station for the month. To insure statistical significance, and to reduce the possibility of introducing a bias in the presentation, averages are computed only when at least 50 percent of the samples are present, except for relative humidity and temperature, in which case 75 percent of the samples are required. If less than the required samples are present for a particular parameter, that entry will be blank. The number of

samples present for a particular channel is defined as the total possible number of five-minute samples for the averaging time less the computer downtime less the channel downtime less the channel calibration time. The averages in Table III are arithmetic averages with the following exceptions:

- Wind speed and wind direction are computed using a vector averaging technique where the wind speed is treated as the vector magnitude.
- Particulate averages are computed as the geometric mean.

Table IV displays the daily averages. Again, 50 percent of the five-minute samples are required in order to compute an average except for the cases of relative humidity and temperature which require 75 percent. A blank entry indicates an insufficient number of five-minute samples present for that day. Wind speed, wind direction, and particulate averages are computed the same way as described in Table III.

Table V presents the maximum daily five-minute average retained in the data base as well as the time of occurrence. A five-minute maximum average is printed if any samples are present for that day. Therefore, the maximum five-minute average for a channel which experienced considerable downtime or calibration time during the day in question may be misrepresentative of the maximum expected for that channel on that day.

Table VI indicates the five largest averages for various averaging times. The table shows the period of time covered by the average. Maxima are chosen so that time segments

are independent. The maximum averages reported are found using a 'sliding average' technique with the exception of the 24-hour particulate average, which is computed from midnight to midnight. For averaging times less than or equal to three hours, the sliding average is stepped one five-minute sample at a time. For longer averaging times the step size is twelve samples or one hour. For averaging times less than or equal to one hour 100 percent of the five-minute samples must be present to compute an average. Averaging times greater than one hour require 90 percent. Whether or not a sliding average is computed is solely determined by the number of samples present in that averaging time and is independent of daily and monthly averaging criteria.

To demonstrate the functional dependence of recorded parameters upon wind direction, Table VII shows pollutant concentration displayed in a bi-variate distribution with wind direction. The tables display the total number of five-minute samples occurring in each concentration and wind speed class. The mean concentration for all samples occurring in each wind class are also shown. This distribution demonstrates the dependence of high pollutant concentrations upon wind direction. Appendix A shows the stability wind rose diagrams.

The wind speed classifications used in Appendix A are based on the Beaufort wind scale classification system. This is a system of estimating and reporting wind speeds, invented in the early nineteenth century by Admiral Beaufort of the British Navy. It was originally based on the effects of various wind speeds on the amount of canvas that a full-rigged frigate of the period could carry, but has since been modified and modernized. In its present form for international meteorological use it equates: (a) Beaufort force (or Beaufort number); (b) wind speed;

(c) descriptive terms; and (d) visible effects upon land objects or the sea surface. One land adaptation is the NRM wind scale.

The six basic wind speed classifications used in the report are: 1-3 knots, 4-6 knots, 7-10 knots, 11-16 knots, 17-21 knots, and winds of greater than 21 knots. The following table is a complete description of the Beaufort Wind Scale, taken from Physical Climatology, by Helmut Landsberg, 1969.

BEAUFORT WIND SCALE FOR OBSERVATIONS AT LAND STATIONS

Force	Explanatory Title	Specification for Use	Corresponding Limits of Wind Speed at 10 meters ab.grd.				
			Mi/hr.	Knots	Km/hr.	M/sec.	Ft/sec.
0	Calm	Smoke rises vertically	<1	<1	<1	0.3	1
1	Light air	Direction of wind shown by smoke drift, but not by wind vanes	1-3	1-3	1-5	0.3-1.5	1-5
2	Light breeze	Wind felt on face:leaves rustle:ordinary vane moved by wind	4-7	4-6	6-11	1.6-3.3	6-11
3	Gentle breeze	Leaves and small twigs in constant motion;wind extends light flat	8-12	7-10	12-19	3.4-5.4	12-[illegible]
4	Moderate breeze	Raises dust and loose paper:small branches are moved	13-18	11-16	20-28	5.5-7.9	19-26
5	Fresh breeze	Small trees in leaf begin to sway:wavelets formed on inland waters	19-24	17-21	29-38	8.0-10.7	27-35
6	Strong breeze	Large branches in motion:whistling heard in telegraph wires:umbrellas used with difficulty	25-31	22-27	39-49	10.8-13.8	36-45
7	High wind	Whole trees in motion:inconvenience felt when walking against wind	32-38	28-33	50-61	13.9-17.1	46-56
8	Fresh gale	Breaks twigs off trees:generally impedes progress	39-46	34-40	62-74	17.2-20.7	57-68
9	Strong gale	Slight structural damage occurs (chimney pots and slates removed)	47-54	41-47	75-88	20.8-24.4	69-80
10	Whole gale	Seldom experienced inland:trees uprooted: considerable structural damage occurs	55-63	48-55	89-102	24.5-28.4	81-93
11	Storm	Very rarely experiences:accompanied by widespread damage	64-72	56-63	103-117	28.5-32.6	94-106
12	Hurricane		73-82	64-71	118-133	32.7-36.9	107-121
13			83-92	72-80	134-149	37.0-41.4	122-136
14			93-102	81-89	150-166	41.5-46.1	137-151
15			104-114	90-99	167-183	46.2-50.9	152-166
16			115-125	100-108	184-201	51.0-56.0	167-183
17			126-136	109-118	202-220	56.1-61.2	184-201

Source: Table 36 (p.119) in R.J. List (1951):Smithsonian Meteorological Tables:Smithsonian Miscell.Coll.Vol. 114.

Table VIII demonstrates the diurnal variation of various recorded parameters. Hourly averages are determined by arithmetically averaging five-minute samples, except for wind direction averages which are computed vectorially assuming unit vector magnitudes. Totals in the diurnal wind direction tables are vector averages of the columns and rows. For all parameters, a blank entry in the diurnal variation table indicates that less than half (i.e., less than 6) of the five-minute samples for that hour are present.

All times given in the data presentation are Mountain Standard Time.

To facilitate comparison of recorded concentrations to ambient air quality standards, the following regulations are presented.

TABLE II

FEDERAL AND COLORADO STANDARDS

	Primary	Secondary	Non-Designated Area	Designated Area		
				1973	1976	1980
Particulate						
Annual G. M.	75 μg/m³	60 μg/m³	45 μg/m³	70 μg/m³	55 μg/m³	45 μg/m³
24 Hr. Max.*	260	150	150	200	180	150
Sulfur Oxides						
Annual	80(.03ppm)		--	60(.02ppm)	25(.009ppm)	10(.004ppm)
24 Hr. Max.*	365(.14ppm)		15(.005ppm)	300(.1ppm)	150(.05ppm)	55(.02ppm)
3 Hr. Max.*	--	1300(.5ppm)	--	--	--	--
1 Hr. Max.**	--	--	--	800(.28ppm)	300(.1ppm)	--
Oxidant						
1 Hr. Max.*	160(.08ppm)	160				
8 Hr. Max.*	--	--				
Annual	--	--				
Hydrocarbons						
3 Hr. Max.* 6-9 a.m.	160(.24ppm)	160				
Carbon Monoxide						
Max. 8 Hrs.*	10000(9ppm)	10000				
Max. 1 Hr.*	40000(35ppm)	40000				
Nitrogen Dioxide						
Annual	100(.05ppm)	100				

Units are micrograms per cubic meter and ppm in parenthesis.

*Not to be exceeded more than once per year.

**Not to be exceeded more than once per month.

TABLE III
AVERAGES FOR APRIL 1 THRU 30

CORPORATION

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                    TABLE III. AVERAGES FOR APR   1 THRU 30
       (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
             TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
             PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

      NITROGEN OXIDES(NOX)              NITRIC OXIDE(NO)               NITROGEN DIOXIDE(NO2)

 SITE    023                                023                             023
         2.5                                1.3                             1.1
-----------------------------------------------------------------------------------------------

      SULFUR DIOXIDE(SO2)                   PYRANOMETER                   HYDROGEN SULFIDE

 SITE    023                                023                             023
          .1                            12864.5                              .2
-----------------------------------------------------------------------------------------------

      TOTAL HYDROCARBONS                      METHANE                NON-METHANE HYDROCARBONS

 SITE    023                                023                             023
      1203.5                              911.0                           292.3
-----------------------------------------------------------------------------------------------

       CARBON MONOXIDE                         OZONE                   BAROMETRIC PRESSURE

 SITE    023                                023                             023
                                           80.6                           789.3
-----------------------------------------------------------------------------------------------

      TOTAL PRECIPITATION                   PARTICULATE

 SITE    023                                023
         .50                                6.4
-----------------------------------------------------------------------------------------------
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                      TABLE III. AVERAGES FOR APR   1 THRU 30
  (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
          TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
          PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                      WIND SPEED

SITE 023
      (  8-FT)                 ( 30-FT)                 (100-FT)                 (200-FT)
        1.5                      2.0                      2.0                      2.4
------------------------------------------------------------------------------------------

                                    WIND DIRECTION

SITE 023
      (  8-FT)                 ( 30-FT)                 (100-FT)                 (200-FT)
      241.4                    231.7                    231.5                    244.4
------------------------------------------------------------------------------------------

                                   RELATIVE HUMIDITY

SITE 023
      (  8-FT)                 ( 30-FT)                 (100-FT)                 (200-FT)
       67.2                     66.7                     68.4                     66.4
------------------------------------------------------------------------------------------

                                      TEMPERATURE

SITE 023
      (  8-FT)                 ( 30-FT)                 (100-FT)                 (200-FT)
       42.0                     43.4                     43.0                     42.3
------------------------------------------------------------------------------------------
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TABLE IV
DAILY AVERAGES FOR APRIL 1 THRU 30

TABLE IV. DAILY AVERAGES FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	NITROGEN OXIDES(NOX)	NITRIC OXIDE(NO)	NITROGEN DIOXIDE(NO2)
SITE	023	023	023
DATE			
4/ 1	.3	.0	.3
4/ 2	.8	.2	.7
4/ 3	.1	.1	.1
4/ 4	.1	.1	.0
4/ 5	1.4	.1	1.3
4/ 6	2.8	.1	2.8
4/ 7	.6	.6	.0
4/ 8	.6	.6	.0
4/ 9	.1	.0	.0
4/10	.0	.0	.0
4/11	1.3	1.2	.1
4/12	1.6	1.4	.1
4/13	.5	.5	.1
4/14	.1	.1	.0
4/15	5.6	5.5	.1
4/16	8.5	8.3	.2
4/17	4.7	4.0	.7
4/18	2.6	1.4	1.3
4/19	2.9	1.8	1.1
4/20	2.1	.6	1.5
4/21	5.0	.3	4.7
4/22	1.2	.0	1.2
4/23	1.3	.0	1.3
4/24	.9	.0	.9
4/25	3.3	2.7	.6
4/26	12.5	.0	12.5
4/27	2.4	.4	2.0
4/28	9.0	7.6	1.4
4/29	2.2	1.8	.4
4/30	.0	.0	.0

TABLE IV, DAILY AVERAGES FOR APR 1 THRU 30
(UNITS;CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	SULFUR DIOXIDE(SO2)	PYRANOMETER	HYDROGEN SULFIDE
SITE DATE	023	023	023
4/ 1	.0	239.6	.3
4/ 2	.0	197.3	.1
4/ 3	.0	437.9	.3
4/ 4	.0	449.0	.5
4/ 5	.0	313.9	.4
4/ 6	.0	576.5	.0
4/ 7	.0	479.3	.0
4/ 8	.0	580.0	.0
4/ 9	.0	596.1	.0
4/10	.0	599.2	.0
4/11	.0	326.4	.0
4/12	.0	166.5	.1
4/13	.0	369.9	1.1
4/14	.0	570.3	1.7
4/15	.1	110.4	.6
4/16	.0	410.8	.0
4/17	.0	534.8	.0
4/18	.0	481.6	.0
4/19	.0	89.5	.0
4/20	.0	467.8	1.8
4/21	.0	447.3	.0
4/22	.1	593.7	.0
4/23	.0	653.1	.0
4/24	1.1	596.8	.0
4/25	.1	508.5	.0
4/26	.0	420.1	.0
4/27	.0	203.9	.0
4/28	.0	311.0	.0
4/29	.0	540.5	.0
4/30	.4	592.8	.0

TABLE IV. DAILY AVERAGES FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	TOTAL HYDROCARBONS	METHANE	NON-METHANE HYDROCARBONS
SITE	023	023	023
DATE			
4/ 1	1100.5	876.8	223.7
4/ 2	1229.0	910.9	318.1
4/ 3	1289.6	950.3	339.3
4/ 4	1206.1	925.3	280.8
4/ 5	1203.2	909.5	293.7
4/ 6	1197.5	865.2	332.3
4/ 7	1281.7	865.4	416.3
4/ 8	1264.6	863.6	401.0
4/ 9	1265.0	862.3	402.7
4/10	1248.8	858.7	390.1
4/11	1256.8	870.6	386.1
4/12	1094.8	873.0	222.3
4/13	1037.7	862.5	175.2
4/14	1054.8	908.9	145.9
4/15	1125.7	1016.0	109.7
4/16	1154.3	1045.0	109.3
4/17	952.3	934.3	18.0
4/18	1112.9	875.4	233.1
4/19	1375.9	877.2	501.9
4/20	1307.9	900.3	407.6
4/21	1332.1	956.9	375.2
4/22	1295.1	973.0	322.1
4/23	1330.5	957.0	373.5
4/24	1295.2	967.2	328.0
4/25	1249.1	960.5	288.6
4/26	1287.3	952.3	335.0
4/27	1155.7	907.8	247.9
4/28	1083.3	871.5	211.8
4/29	1141.2	857.0	284.2
4/30	1187.3	867.6	319.7

TABLE IV. DAILY AVERAGES FOR APR 1 THRU 30

(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	CARBON MONOXIDE	OZONE	BAROMETRIC PRESSURE
SITE DATE	023	023	023
4/ 1	384.0	95.8	777.3
4/ 2		86.6	778.6
4/ 3		86.2	785.5
4/ 4		74.0	790.5
4/ 5		65.4	794.1
4/ 6	388.3	73.7	796.2
4/ 7		74.9	796.2
4/ 8		81.1	794.2
4/ 9		90.6	788.2
4/10		86.7	786.4
4/11		74.6	786.5
4/12		65.6	791.3
4/13	385.2	79.2	787.0
4/14	432.2	94.0	782.7
4/15	525.0	63.2	786.7
4/16	521.2	61.9	789.8
4/17	425.0	75.7	787.8
4/18	378.1	75.0	785.3
4/19	473.9	75.7	786.0
4/20	585.4	74.0	786.9
4/21	564.0	79.7	792.2
4/22		83.4	795.4
4/23	498.3	85.7	796.8
4/24	439.8	87.9	796.0
4/25		88.4	792.1
4/26		92.9	789.2
4/27		88.6	788.7
4/28		81.3	790.6
4/29		83.5	791.1
4/30		92.7	788.8

TABLE IV. DAILY AVERAGES FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	TOTAL PRECIPITATION	PARTICULATE
SITE DATE	023	023
4/ 1		
4/ 2	.05	1.0
4/ 3		1.0
4/ 4		5.0
4/ 5		4.0
4/ 6		4.0
4/ 7		4.0
4/ 8		4.0
4/ 9		5.0
4/10		34.0
4/11	.08	25.0
4/12	.12	7.0
4/13	.06	
4/14		6.0
4/15	.13	6.0
4/16		5.0
4/17		1.0
4/18		5.0
4/19	.04	16.0
4/20		4.0
4/21		9.0
4/22		7.0
4/23		14.0
4/24		3.0
4/25		
4/26		
4/27	.02	36.0
4/28		32.0
4/29		10.0
4/30		13.0

CORPORATION

TABLE IV. DAILY AVERAGES FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

WIND SPEED

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
4/ 1	3.4	4.7	5.3	5.8
4/ 2	1.9	2.5	2.6	3.0
4/ 3	4.0	5.3	6.3	7.2
4/ 4	1.2	1.3	1.6	2.3
4/ 5	.5	.4	.6	1.0
4/ 6	1.9	2.6	3.2	3.4
4/ 7	1.4	1.9	1.7	1.8
4/ 8	5.4	7.2	8.8	9.9
4/ 9	8.7	11.8	13.8	15.4
4/10	6.5	8.7	10.0	11.0
4/11	3.3	4.6	5.4	6.2
4/12	1.9	2.9	3.7	4.3
4/13	3.5	4.9	5.4	5.6
4/14	3.5	4.5	5.2	5.7
4/15	3.7	5.4	6.4	7.0
4/16	1.7	2.4	2.8	3.0
4/17	1.3	1.9	2.5	2.6
4/18	3.7	5.1	5.8	6.5
4/19	3.9	5.0	6.0	6.4
4/20	3.0	4.0	4.8	6.0
4/21	.3	.6	.7	1.3
4/22	1.2	1.4	1.9	2.2
4/23	1.3	1.7	2.4	2.4
4/24	2.2	2.9	4.1	4.8
4/25	1.6	2.0	2.1	2.7
4/26	3.1	4.2	5.5	6.7
4/27	3.2	4.8	5.5	5.1
4/28	4.1	5.6	6.3	6.8
4/29	.8	.9	.9	1.8
4/30	3.6	5.3	7.1	8.2

TABLE IV. DAILY AVERAGES FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

WIND DIRECTION

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
4/ 1	194.1	184.7	185.4	197.8
4/ 2	263.1	254.2	250.8	251.4
4/ 3	345.0	335.1	341.2	350.1
4/ 4	342.7	333.5	334.6	336.6
4/ 5	331.5	324.1	1.2	359.0
4/ 6	197.9	188.2	178.8	190.3
4/ 7	209.5	195.7	196.7	220.5
4/ 8	200.8	192.1	190.3	198.6
4/ 9	187.4	178.8	177.0	185.5
4/10	214.7	209.0	209.0	217.5
4/11	255.8	249.2	253.3	263.7
4/12	291.4	280.0	290.8	302.3
4/13	221.4	211.6	211.2	221.4
4/14	236.1	229.2	229.3	236.5
4/15	309.3	300.7	307.9	318.2
4/16	314.1	306.3	320.9	334.4
4/17	349.8	350.1	4.8	8.1
4/18	285.9	282.3	290.2	299.1
4/19	317.7	309.6	315.2	323.1
4/20	351.6	337.4	354.9	352.8
4/21	181.9	172.8	163.0	201.4
4/22	319.4	325.1	349.4	356.3
4/23	340.8	341.9	357.0	10.8
4/24	351.8	344.8	352.3	359.6
4/25	305.0	303.5	311.0	310.9
4/26	202.0	192.4	195.8	214.4
4/27	152.7	141.8	139.2	150.4
4/28	193.7	186.2	185.8	196.4
4/29	291.8	256.3	230.5	247.2
4/30	191.4	182.5	182.9	195.0

TABLE IV, DAILY AVERAGES FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

RELATIVE HUMIDITY

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
4/ 1	86.0	85.8	89.0	84.1
4/ 2	94.2	91.8	99.8	94.5
4/ 3	89.8	88.2	92.7	89.8
4/ 4	80.9	80.7	82.6	79.6
4/ 5	76.0	74.9	77.0	74.9
4/ 6	56.5	55.5	57.2	55.1
4/ 7	49.6	49.1	49.2	47.1
4/ 8	47.1	45.0	46.2	45.0
4/ 9	39.2	40.7	41.5	40.6
4/10	38.5	40.5	41.3	40.4
4/11	73.3	73.9	75.3	72.3
4/12	96.9	95.5	98.0	95.4
4/13	84.7	81.8	83.9	79.0
4/14	59.6	58.0	59.9	59.4
4/15	97.0	96.6	97.0	96.5
4/16	91.0	89.5	91.0	89.1
4/17	68.4	64.3	67.3	65.4
4/18	76.6	78.1	79.1	78.8
4/19	99.5	100.0	100.0	98.3
4/20	74.2	73.3	75.5	72.1
4/21	47.6	47.3	49.0	47.1
4/22	40.8	42.0	42.6	41.0
4/23	41.8	43.1	44.0	43.2
4/24	46.0	46.2	47.0	46.6
4/25	45.4	45.4	46.7	46.3
4/26	47.1	47.9	49.2	48.1
4/27	63.4	62.6	64.2	62.4
4/28	83.7	81.2	82.9	81.0
4/29	66.4	66.8	68.3	66.1
4/30	52.8	52.2	53.0	52.4

TABLE IV. DAILY AVERAGES FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

TEMPERATURE

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
4/ 1	26.3	26.1	25.4	23.8
4/ 2	23.5	23.2	22.5	20.8
4/ 3	20.5	20.1	19.8	18.0
4/ 4	31.5	32.1	31.6	30.3
4/ 5	37.3	37.9	37.5	37.0
4/ 6	42.4	44.1	44.2	43.9
4/ 7	46.3	48.6	48.9	48.7
4/ 8	49.9	52.4	53.1	52.9
4/ 9	53.9	56.3	56.0	55.6
4/10	52.8	55.1	54.7	54.3
4/11	40.6	41.6	41.1	40.2
4/12	34.4	35.3	34.6	33.3
4/13	35.7	37.0	36.5	36.0
4/14	43.1	44.1	43.5	42.9
4/15	31.4	31.3	30.3	29.2
4/16	39.1	40.3	39.6	38.6
4/17	46.8	48.6	48.3	48.0
4/18	42.5	43.4	42.6	41.7
4/19	29.4	29.2	28.3	27.1
4/20	35.1	36.0	35.4	34.4
4/21	41.9	43.8	43.8	43.4
4/22	48.5	51.0	51.0	50.8
4/23	51.1	53.4	53.0	52.8
4/24	51.3	53.6	53.2	52.7
4/25	51.1	53.4	53.6	53.2
4/26	53.4	55.3	55.5	55.1
4/27	48.9	51.2	51.4	50.9
4/28	45.2	47.2	46.9	46.1
4/29	50.3	52.4	52.2	51.7
4/30	55.5	57.7	57.6	57.0

TABLE V

MAXIMUM FIVE-MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APRIL 1 THRU 30

```
        TABLE V. MAXIMUM FIVE MINUTE AVERA  S AND TIME OF OCCURRENCE FOR APR   1 THRU  0
       (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
            TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
            PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              NITROGEN OXIDES(NOX)

    SITE      023
DATE
------------------------------------------------------------------------------------------
 4/ 1        74.9( 6:00)
 4/ 2        91.7(23:05)
 4/ 3        11.2(10:35)
 4/ 4         5.6(17:30)
 4/ 5         9.4(22:45)
 4/ 6        16.9( 4:10)
 4/ 7         7.5( 9:45)
 4/ 8        13.1( 4:00)
 4/ 9         7.5(16:40)
 4/10         1.9( 2:40)
------------------------------------------------------------------------------------------
 4/11         9.4(20:40)
 4/12        13.1( 8:20)
 4/13         9.4(18:50)
 4/14         3.7( 6:50)
 4/15        18.7(14:40)
 4/16        18.7(15:15)
 4/17        28.1(23:45)
 4/18        54.3( 7:15)
 4/19        16.9(20:15)
 4/20        20.6(20:50)
------------------------------------------------------------------------------------------
 4/21        50.6( 4:30)
 4/22        16.9( 9:05)
 4/23         9.4( 4:35)
 4/24        22.5( 5:55)
 4/25        16.9( 8:50)
 4/26        37.4( 7:00)
 4/27        15.0( 0:05)
 4/28        18.7(16:50)
 4/29        16.9( 0:00)
 4/30          .0( 0:00)
```

```
TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR   1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              NITRIC OXIDE(NO)

    SITE      023
DATE
------------------------------------------------------------------------------------------
 4/ 1        3.7(14:35)
 4/ 2       26.2(23:05)
 4/ 3       11.2(10:35)
 4/ 4        5.6(17:30)
 4/ 5        3.7(22:35)
 4/ 6        3.7( 2:05)
 4/ 7        7.5( 9:45)
 4/ 8       13.1( 4:00)
 4/ 9        3.7(23:50)
 4/10        1.9( 2:40)
------------------------------------------------------------------------------------------
 4/11        9.4(20:40)
 4/12        7.5( 4:00)
 4/13        5.6( 0:50)
 4/14        3.7( 6:50)
 4/15       18.7(14:40)
 4/16       18.7(15:15)
 4/17       15.0( 0:55)
 4/18       28.1( 7:15)
 4/19        9.4( 5:30)
 4/20        9.4( 4:10)
------------------------------------------------------------------------------------------
 4/21       13.1( 8:20)
 4/22         .0( 9:05)
 4/23         .0( 0:00)
 4/24         .0( 0:00)
 4/25       15.0( 8:55)
 4/26        3.7( 1:40)
 4/27        7.5( 3:30)
 4/28       15.0(12:25)
 4/29       15.0( 0:20)
 4/30         .0( 0:00)
```

```
CORPORATION
 TABLE V, MAXIMUM FIVE MINUTE AVERA  J AND TIME OF OCCURRENCE FOR APR   1 THRU  J
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
        TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
        PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                        NITROGEN DIOXIDE(NO2)

    SITE      023
DATE
------------------------------------------------------------------------------------------
 4/ 1       74.9( 6:00)
 4/ 2       65.5(23:05)
 4/ 3        9.4( 3:30)
 4/ 4         .0( 0:00)
 4/ 5        9.4(22:45)
 4/ 6       16.9( 4:10)
 4/ 7         .0( 0:00)
 4/ 8        7.5(14:45)
 4/ 9        7.5(16:40)
 4/10        1.9( 4:00)
------------------------------------------------------------------------------------------
 4/11        7.5(20:55)
 4/12        7.5( 7:40)
 4/13        9.4(18:50)
 4/14         .0( 0:00)
 4/15        7.5(13:30)
 4/16        7.5( 2:15)
 4/17       22.5(23:45)
 4/18       26.2( 7:15)
 4/19       11.2(20:15)
 4/20       20.6(20:50)
------------------------------------------------------------------------------------------
 4/21       50.6( 4:30)
 4/22       16.9( 9:05)
 4/23        9.4( 4:35)
 4/24       22.5( 5:55)
 4/25        7.5(13:10)
 4/26       37.4( 7:00)
 4/27       15.0( 0:05)
 4/28        3.7(12:10)
 4/29        3.7( 0:00)
 4/30         .0( 0:00)
```

```
        TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR   1 THRU 30
       (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
            TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
            PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                      SULFUR DIOXIDE(SO2)

    SITE      023
DATE
----------------------------------------------------------------------------------------------------
 4/ 1          .0( 0:00)
 4/ 2          .0( 0:00)
 4/ 3         2.6(14:55)
 4/ 4         2.6(12:35)
 4/ 5          .0( 0:00)
 4/ 6          .0( 0:00)
 4/ 7          .0( 0:00)
 4/ 8         2.6(13:50)
 4/ 9          .0( 0:00)
 4/10         2.6( 3:10)
----------------------------------------------------------------------------------------------------
 4/11         2.6(10:40)
 4/12         2.6( 6:15)
 4/13          .0( 0:00)
 4/14          .0( 0:00)
 4/15         2.6(10:05)
 4/16         2.6(14:20)
 4/17         2.6( 5:35)
 4/18          .0( 0:00)
 4/19          .0( 0:00)
 4/20          .0( 0:00)
----------------------------------------------------------------------------------------------------
 4/21          .0( 0:00)
 4/22        13.0(11:30)
 4/23         2.6(11:20)
 4/24         5.2(11:15)
 4/25         2.6( 0:25)
 4/26          .0( 0:00)
 4/27          .0( 0:00)
 4/28          .0( 0:00)
 4/29          .0( 0:00)
 4/30         2.6( 5:40)
```

```
CORPORATION
      TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR   1 THRU 30
   (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
          TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
          PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                   PYRANOMETER

    SITE      023
DATE
-------------------------------------------------------------------------------------------
 4/ 1       5.15(10:20)
 4/ 2       5.20(10:25)
 4/ 3       7.10(10:55)
 4/ 4       6.55(12:40)
 4/ 5       7.70(11:50)
 4/ 6       6.30(11:50)
 4/ 7       7.35(12:40)
 4/ 8       6.45(12:15)
 4/ 9       6.55(12:15)
 4/10       6.55(12:00)
-------------------------------------------------------------------------------------------
 4/11       7.55(11:40)
 4/12       5.60(12:40)
 4/13       7.85(12:30)
 4/14       7.35(13:40)
 4/15       1.90(13:55)
 4/16       7.20(12:55)
 4/17       6.55(12:00)
 4/18       7.75(13:00)
 4/19       1.55(10:40)
 4/20       7.80(12:05)
-------------------------------------------------------------------------------------------
 4/21       6.65(12:30)
 4/22       6.65(12:10)
 4/23       6.90(12:05)
 4/24       7.15(12:25)
 4/25       7.15(13:35)
 4/26       7.55(11:00)
 4/27       4.90(14:30)
 4/28       6.35(13:20)
 4/29       7.40(12:15)
 4/30       7.15(11:45)
```

CORPORATION

```
TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR   1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              HYDROGEN SULFIDE

    SITE      023
DATE
------------------------------------------------------------------------------------------
 4/ 1       2.8(13:15)
 4/ 2       1.4(22:20)
 4/ 3       1.4( 0:20)
 4/ 4       8.3(14:05)
 4/ 5       2.8( 8:25)
 4/ 6       1.4(17:00)
 4/ 7        .0( 0:00)
 4/ 8        .0( 0:00)
 4/ 9        .0( 0:00)
 4/10        .0( 0:00)
------------------------------------------------------------------------------------------
 4/11        .0( 0:00)
 4/12       1.4(11:45)
 4/13       5.5(23:25)
 4/14       5.5( 8:15)
 4/15       2.8( 0:15)
 4/16        .0( 0:00)
 4/17       1.4( 8:40)
 4/18       1.4( 8:20)
 4/19       1.4( 1:50)
 4/20      12.5(10:35)
------------------------------------------------------------------------------------------
 4/21        .0( 0:00)
 4/22      12.5(11:30)
 4/23        .0( 0:00)
 4/24        .0( 0:00)
 4/25        .0( 0:00)
 4/26        .0( 0:00)
 4/27        .0( 0:00)
 4/28        .0( 0:00)
 4/29        .0( 0:00)
 4/30        .0( 0:00)
```

```
CORPORATION
 TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR   1 THRU [illegible]
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                           TOTAL HYDROCARBONS

    SITE      023
DATE
------------------------------------------------------------------------------------
 4/ 1      1259.5(18:00)
 4/ 2      1425.5(23:45)
 4/ 3      1522.6( 0:00)
 4/ 4      1342.2(10:45)
 4/ 5      1370.8(14:30)
 4/ 6      1301.2(11:45)
 4/ 7      1356.5(16:50)
 4/ 8      1357.8( 9:20)
 4/ 9      1331.1( 8:40)
 4/10      1644.4(13:45)
------------------------------------------------------------------------------------
 4/11      1378.7( 8:25)
 4/12      1421.6(10:40)
 4/13      1251.7( 7:45)
 4/14      2539.8(15:40)
 4/15      2602.3(14:40)
 4/16      1332.4( 8:20)
 4/17      1267.9( 8:15)
 4/18      2302.7(14:45)
 4/19      1572.7( 6:30)
 4/20      1525.2(20:20)
------------------------------------------------------------------------------------
 4/21      1682.8( 7:40)
 4/22      1919.6(16:05)
 4/23      1499.8(10:20)
 4/24      1383.9( 9:45)
 4/25      1340.9( 6:40)
 4/26      1386.5(13:25)
 4/27      1326.6( 7:55)
 4/28      1155.9(19:00)
 4/29      1230.8(16:20)
 4/30      1669.8(13:45)
```

```
   TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR   1 THRU 30
  (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
        TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
        PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              METHANE

    SITE     023
DATE
------------------------------------------------------------------------------------------
 4/ 1      925.4(15:10)
 4/ 2     1080.4(23:55)
 4/ 3     1089.5( 0:00)
 4/ 4      952.7(13:15)
 4/ 5      972.9( 8:40)
 4/ 6      881.1( 1:05)
 4/ 7      884.4(10:30)
 4/ 8      879.2(12:35)
 4/ 9      882.4(17:05)
 4/10      877.9( 9:00)
------------------------------------------------------------------------------------------
 4/11      920.8( 7:20)
 4/12      939.7(10:15)
 4/13      907.8( 4:40)
 4/14     2539.8(15:40)
 4/15     1046.5( 8:10)
 4/16     1138.4( 8:10)
 4/17     1057.6(10:50)
 4/18      987.3(17:00)
 4/19     1008.1( 6:35)
 4/20     1010.1(21:05)
------------------------------------------------------------------------------------------
 4/21      989.2( 9:10)
 4/22     1246.5(18:40)
 4/23     1049.8(10:20)
 4/24     1109.7( 9:45)
 4/25      989.2(15:55)
 4/26      974.9( 2:45)
 4/27      969.0( 8:50)
 4/28     1053.0(11:50)
 4/29      887.0(17:35)
 4/30      892.2(16:40)
```

```
CORPORATION
     TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR   1 THRU 30
   (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
           TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
           PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                  NON-METHANE HYDROCARBONS

    SITE      023
DATE
-------------------------------------------------------------------------------------------
 4/ 1       371.9(20:40)
 4/ 2       397.9(11:15)
 4/ 3       433.1( 0:00)
 4/ 4       409.0(11:40)
 4/ 5       450.0(14:30)
 4/ 6       426.6( 4:55)
 4/ 7       490.4( 8:40)
 4/ 8       490.4( 9:30)
 4/ 9       464.3( 8:40)
 4/10      1047.8(22:35)
-------------------------------------------------------------------------------------------
 4/11       474.1( 8:25)
 4/12       515.1(10:40)
 4/13       358.2( 7:45)
 4/14       332.1(10:35)
 4/15      1749.9(14:40)
 4/16       265.7(10:15)
 4/17       278.7(11:00)
 4/18       623.9(16:15)
 4/19       596.5( 6:25)
 4/20       560.1(20:20)
-------------------------------------------------------------------------------------------
 4/21       719.0( 7:40)
 4/22       969.0(16:05)
 4/23       485.2( 4:25)
 4/24       401.2( 8:35)
 4/25       388.1( 6:40)
 4/26       432.4(13:25)
 4/27       370.5( 8:15)
 4/28       295.7(19:00)
 4/29       767.8(10:30)
 4/30       795.2(13:45)
```

CORPORATION

TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

CARBON MONOXIDE

DATE \ SITE	023
4/ 1	561.8(15:10)
4/ 2	500.3(4:35)
4/ 3	
4/ 4	
4/ 5	453.6(17:35)
4/ 6	428.5(0:40)
4/ 7	
4/ 8	
4/ 9	
4/10	
4/11	
4/12	450.2(15:05)
4/13	503.7(10:30)
4/14	573.2(16:05)
4/15	1090.6(9:45)
4/16	592.6(9:15)
4/17	600.6(6:50)
4/18	1333.4(15:20)
4/19	2947.1(23:35)
4/20	3705.0(3:40)
4/21	868.4(17:55)
4/22	
4/23	581.2(14:10)
4/24	795.5(19:20)
4/25	442.2(1:40)
4/26	
4/27	
4/28	
4/29	
4/30	

RADIAN CORPORATION

```
TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR   1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
       TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
       PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                   OZONE

    SITE      023
DATE
------------------------------------------------------------------------------------------
 4/ 1       107.5(15:35)
 4/ 2       101.6(17:10)
 4/ 3       101.6(14:55)
 4/ 4        87.9( 3:50)
 4/ 5        82.1(17:25)
 4/ 6        87.9(11:30)
 4/ 7        86.0(11:10)
 4/ 8        95.7(15:00)
 4/ 9       105.5(16:15)
 4/10       101.6(16:05)
------------------------------------------------------------------------------------------
 4/11        91.8( 9:40)
 4/12        86.0( 1:10)
 4/13       119.2(15:20)
 4/14       107.5(12:35)
 4/15        72.3( 0:05)
 4/16        86.0(17:20)
 4/17        97.7(11:00)
 4/18       123.1(16:35)
 4/19        91.8(17:10)
 4/20       154.3(14:35)
------------------------------------------------------------------------------------------
 4/21       101.6(10:45)
 4/22       103.5(11:45)
 4/23       105.5(18:50)
 4/24       109.4(16:30)
 4/25       109.4(12:45)
 4/26       109.4(10:55)
 4/27       109.4(10:50)
 4/28       103.5(11:35)
 4/29       101.6(10:55)
 4/30       107.5(11:00)
```

```
CORPORATION
  TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR   1 THRU 30
 (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                             BAROMETRIC PRESSURE

    SITE      023
DATE
------------------------------------------------------------------------------------
  4/ 1       781.0( 0:00)
  4/ 2       784.0(23:05)
  4/ 3       789.0(20:50)
  4/ 4       792.0(22:00)
  4/ 5       796.0(20:35)
  4/ 6       798.0( 9:20)
  4/ 7       797.0( 5:00)
  4/ 8       796.0( 0:00)
  4/ 9       791.0( 0:00)
  4/10       788.0( 5:35)
------------------------------------------------------------------------------------
  4/11       789.0(22:10)
  4/12       793.0(10:20)
  4/13       791.0( 0:00)
  4/14       786.0(21:30)
  4/15       789.0(20:25)
  4/16       791.0( 7:00)
  4/17       790.0( 0:00)
  4/18       788.0( 0:05)
  4/19       786.0( 0:00)
  4/20       790.0(23:20)
------------------------------------------------------------------------------------
  4/21       794.0( 8:40)
  4/22       798.0(14:05)
  4/23       798.0( 6:20)
  4/24       798.0( 0:00)
  4/25       795.0( 0:00)
  4/26       791.0( 0:00)
  4/27       790.0( 8:00)
  4/28       792.0(22:30)
  4/29       793.0( 8:35)
  4/30       791.0( 0:00)
```

```
TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR   1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                    TOTAL PRECIPITATION

   SITE     023
DATE
-------------------------------------------------------------------------------------
 4/ 1
 4/ 2       .01( 6:25)
 4/ 3
 4/ 4
 4/ 5
 4/ 6
 4/ 7
 4/ 8
 4/ 9
 4/10
-------------------------------------------------------------------------------------
 4/11       .02( 9:10)
 4/12       .01( 1:15)
 4/13       .02( 6:30)
 4/14
 4/15       .01(11:15)
 4/16
 4/17
 4/18
 4/19       .01(13:40)
 4/20
-------------------------------------------------------------------------------------
 4/21
 4/22
 4/23
 4/24
 4/25
 4/26
 4/27       .01(12:40)
 4/28
 4/29
 4/30
```

TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

WIND SPEED - WIND DIRECTION

SITE 023

DATE	(8-FT)		(30-FT)		(100-FT)		(200-FT)	
4/ 1	16.0	199.0(18:10)	20.0	193.0(18:10)	24.0	194.0(18:10)	28.0	206.0(18:10)
4/ 2	10.0	234.0(10:00)	12.0	173.0(8:30)	14.0	208.0(6:10)	16.0	219.0(6:10)
4/ 3	15.0	349.0(13:30)	19.0	345.0(12:40)	21.0	347.0(12:40)	22.0	351.0(12:40)
4/ 4	10.0	355.0(12:35)	12.0	330.0(11:20)	14.0	307.0(14:35)	16.0	264.0(18:05)
4/ 5	7.0	18.0(9:20)	10.0	14.0(16:25)	10.0	18.0(16:25)	11.0	25.0(16:25)
4/ 6	9.0	229.0(13:55)	11.0	227.0(13:55)	12.0	251.0(15:00)	13.0	221.0(19:55)
4/ 7	12.0	230.0(12:15)	14.0	229.0(12:15)	15.0	232.0(12:15)	16.0	243.0(12:15)
4/ 8	16.0	204.0(14:20)	19.0	192.0(14:50)	20.0	203.0(12:50)	22.0	209.0(12:50)
4/ 9	24.0	200.0(12:55)	28.0	188.0(12:55)	31.0	185.0(12:55)	32.0	205.0(11:00)
4/10	20.0	194.0(12:35)	24.0	189.0(12:35)	28.0	189.0(12:35)	30.0	198.0(12:35)
4/11	21.0	180.0(8:50)	26.0	172.0(8:50)	30.0	172.0(8:50)	33.0	234.0(17:45)
4/12	9.0	269.0(1:00)	13.0	264.0(1:00)	15.0	260.0(1:10)	17.0	272.0(1:00)
4/13	19.0	248.0(13:05)	23.0	242.0(13:00)	27.0	242.0(13:00)	29.0	252.0(13:00)
4/14	19.0	190.0(11:55)	23.0	185.0(11:55)	26.0	312.0(18:35)	29.0	321.0(18:35)
4/15	8.0	330.0(8:45)	11.0	321.0(8:45)	12.0	328.0(17:05)	12.0	335.0(8:35)
4/16	9.0	320.0(13:25)	12.0	315.0(13:25)	13.0	322.0(13:25)	13.0	328.0(13:25)
4/17	13.0	288.0(16:10)	18.0	355.0(17:10)	21.0	337.0(17:05)	23.0	353.0(20:35)
4/18	18.0	209.0(13:45)	23.0	349.0(17:20)	28.0	353.0(17:20)	29.0	360.0(17:20)
4/19	11.0	335.0(11:40)	13.0	308.0(10:30)	15.0	327.0(0:00)	15.0	331.0(0:00)
4/20	14.0	351.0(16:35)	18.0	344.0(16:35)	19.0	346.0(16:35)	19.0	353.0(16:35)
4/21	10.0	324.0(13:05)	12.0	314.0(13:05)	14.0	193.0(19:10)	16.0	206.0(19:10)
4/22	13.0	350.0(15:10)	16.0	342.0(15:10)	17.0	344.0(15:10)	17.0	347.0(15:10)
4/23	15.0	335.0(16:25)	19.0	331.0(16:25)	22.0	340.0(16:25)	22.0	345.0(16:25)
4/24	13.0	355.0(12:00)	17.0	53.0(17:45)	21.0	57.0(17:45)	22.0	60.0(17:45)
4/25	12.0	5.0(12:40)	16.0	306.0(13:45)	17.0	312.0(13:45)	18.0	315.0(13:45)
4/26	20.0	182.0(12:25)	24.0	172.0(12:25)	28.0	170.0(12:25)	28.0	177.0(12:25)
4/27	16.0	326.0(19:10)	21.0	322.0(19:10)	25.0	322.0(19:10)	28.0	329.0(19:10)
4/28	20.0	199.0(12:15)	26.0	196.0(12:15)	32.0	197.0(12:15)	32.0	206.0(12:15)
4/29	15.0	334.0(12:30)	18.0	321.0(12:30)	20.0	325.0(12:30)	19.0	328.0(12:30)
4/30	13.0	225.0(15:15)	17.0	195.0(16:00)	18.0	218.0(15:15)	19.0	221.0(15:20)

TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

RELATIVE HUMIDITY

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
4/ 1	100.0(12:45)	100.0(6:20)	100.0(5:00)	100.0(9:00)
4/ 2	100.0(19:40)	99.0(23:25)	100.0(0:00)	100.0(12:00)
4/ 3	100.0(0:00)	98.0(0:05)	100.0(0:00)	100.0(0:00)
4/ 4	96.0(0:00)	93.0(0:00)	94.0(0:00)	94.0(21:05)
4/ 5	92.0(0:00)	93.0(0:00)	94.0(0:00)	92.0(0:00)
4/ 6	72.0(0:15)	71.0(3:50)	73.0(0:45)	68.0(4:30)
4/ 7	58.0(7:00)	56.0(3:05)	56.0(7:10)	53.0(8:00)
4/ 8	57.0(1:40)	56.0(6:50)	56.0(3:30)	54.0(2:15)
4/ 9	45.0(3:45)	45.0(3:35)	47.0(3:35)	44.0(3:20)
4/10	44.0(2:35)	45.0(2:35)	47.0(23:55)	45.0(23:45)
4/11	100.0(9:35)	100.0(18:20)	100.0(9:35)	100.0(9:55)
4/12	100.0(1:35)	100.0(4:00)	100.0(0:00)	100.0(3:30)
4/13	100.0(0:40)	100.0(10:00)	100.0(0:00)	100.0(7:00)
4/14	91.0(23:05)	87.0(22:25)	93.0(22:55)	92.0(22:55)
4/15	100.0(8:10)	100.0(7:00)	100.0(6:55)	100.0(6:50)
4/16	100.0(0:00)	100.0(0:00)	100.0(0:05)	100.0(0:05)
4/17	94.0(3:05)	88.0(3:05)	92.0(1:35)	90.0(1:20)
4/18	100.0(21:25)	100.0(22:10)	100.0(20:25)	100.0(20:55)
4/19	100.0(1:55)	100.0(0:00)	100.0(0:00)	100.0(1:20)
4/20	100.0(0:00)	99.0(0:00)	100.0(0:00)	100.0(0:00)
4/21	62.0(5:10)	59.0(6:25)	61.0(7:40)	56.0(7:40)
4/22	48.0(6:40)	48.0(7:00)	49.0(7:15)	48.0(7:40)
4/23	50.0(6:25)	52.0(7:00)	53.0(7:00)	52.0(7:45)
4/24	62.0(4:45)	60.0(6:35)	58.0(6:50)	59.0(7:40)
4/25	55.0(6:35)	54.0(7:45)	56.0(7:45)	55.0(7:35)
4/26	55.0(5:05)	54.0(5:05)	56.0(7:00)	52.0(5:10)
4/27	87.0(23:35)	85.0(22:00)	88.0(23:55)	87.0(23:40)
4/28	98.0(4:40)	96.0(5:50)	97.0(5:50)	94.0(3:05)
4/29	89.0(5:00)	89.0(6:15)	89.0(4:55)	86.0(4:40)
4/30	69.0(5:20)	69.0(1:35)	69.0(1:35)	68.0(1:35)

TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR APR 1 THRU 30
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

TEMPERATURE

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
4/ 1	34.0(16:05)	32.0(16:50)	32.0(16:50)	29.0(16:50)
4/ 2	31.0(10:10)	29.0(10:10)	29.0(10:30)	26.0(10:10)
4/ 3	29.0(15:00)	27.0(15:35)	27.0(17:00)	24.0(17:00)
4/ 4	46.0(14:40)	43.0(14:35)	43.0(14:50)	40.0(14:35)
4/ 5	47.0(15:50)	46.0(16:10)	45.0(16:10)	44.0(16:10)
4/ 6	58.0(16:10)	56.0(15:45)	55.0(16:10)	54.0(16:10)
4/ 7	60.0(13:10)	59.0(13:50)	57.0(13:05)	57.0(16:55)
4/ 8	65.0(13:25)	63.0(14:15)	61.0(14:15)	61.0(14:15)
4/ 9	67.0(12:05)	66.0(13:25)	64.0(14:05)	64.0(14:35)
4/10	66.0(12:50)	65.0(16:00)	63.0(15:55)	63.0(16:35)
4/11	53.0(12:30)	51.0(12:20)	50.0(12:40)	49.0(13:55)
4/12	43.0(16:20)	41.0(15:20)	40.0(15:25)	38.0(15:25)
4/13	48.0(17:25)	45.0(15:20)	44.0(16:55)	43.0(12:35)
4/14	60.0(12:35)	58.0(12:45)	56.0(12:45)	56.0(14:20)
4/15	38.0(17:35)	36.0(15:45)	34.0(14:50)	34.0(15:50)
4/16	51.0(14:20)	51.0(16:45)	49.0(16:30)	48.0(16:45)
4/17	63.0(13:55)	63.0(14:35)	61.0(14:20)	60.0(14:20)
4/18	63.0(13:05)	62.0(14:35)	60.0(14:35)	62.0(16:00)
4/19	34.0(11:05)	31.0(0:00)	30.0(0:05)	30.0(20:40)
4/20	49.0(14:50)	47.0(15:50)	46.0(16:20)	44.0(14:50)
4/21	58.0(13:25)	57.0(14:15)	55.0(14:15)	53.0(14:15)
4/22	62.0(11:35)	61.0(12:50)	60.0(14:10)	59.0(14:55)
4/23	68.0(16:15)	66.0(15:05)	64.0(15:00)	64.0(15:30)
4/24	67.0(12:00)	67.0(15:45)	64.0(14:25)	63.0(14:25)
4/25	67.0(15:35)	65.0(15:35)	63.0(15:30)	62.0(13:45)
4/26	68.0(11:05)	64.0(11:00)	63.0(17:25)	62.0(16:55)
4/27	63.0(11:20)	62.0(10:50)	60.0(10:50)	59.0(10:50)
4/28	58.0(14:05)	56.0(13:55)	55.0(14:05)	53.0(13:55)
4/29	63.0(15:20)	63.0(15:45)	61.0(14:35)	60.0(15:25)
4/30	69.0(14:20)	68.0(14:10)	67.0(15:10)	66.0(15:10)

TABLE VI

THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR APRIL 1 THRU 30

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TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR APR   1-30
                (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
          UNITS; CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                 WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                   NITROGEN OXIDES[WS; WD]
                                      1-HOUR
SITE              023

 1. 4/18( 6:40- 7:40)  20.4[ 1:  2]
 2. 4/21( 2:30- 3:30)  17.6[ 0:172]
 3. 4/28(15:50-16:50)  17.0[ 6:205]
 4. 4/25(10:10-11:10)  16.9[ 5:328]
 5. 4/25(11:15-12:15)  16.9[ 8:  4]
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                                    NITRIC OXIDE[WS; WD]
                                      1-HOUR
SITE              023

 1. 4/25(11:50-12:50)  14.7[ 9:349]
 2. 4/28(13:35-14:35)  14.7[16:199]
 3. 4/28(18:10-19:10)  14.5[ 9:161]
 4. 4/28(20:55-21:55)  14.5[ 4:126]
 5. 4/28(17:00-18:00)  14.4[ 8:171]
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                                   NITROGEN DIOXIDE[WS; WD]
                                      1-HOUR
SITE              023

 1. 4/21( 2:30- 3:30)  17.5[ 0:172]
 2. 4/26( 6:50- 7:50)  16.7[ 3: 75]
 3. 4/26(11:00-12:00)  16.1[14:207]
 4. 4/26(15:25-16:25)  15.4[13:243]
 5. 4/26( 4:20- 5:20)  15.0[ 3: 95]
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CORPORATION

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TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR APR   1-30
                (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                  UNITS; CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                      WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                    SULFUR DIOXIDE[WS; WD]
                                       1-HOUR
SITE               023

 1. 4/24(14:45-15:45)   3.0[10: 23]
 2. 4/24(13:00-14:00)   2.4[ 7: 20]
 3. 4/24(11:00-12:00)   2.2[ 9:336]
 4. 4/24(15:50-16:50)   2.0[13:356]
 5. 4/24(18:00-19:00)   2.0[ 9: 32]
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                                    SULFUR DIOXIDE[WS; WD]
                                       3-HOUR
SITE               023

 1. 4/24(12:45-15:45)   2.3[10:  2]
 2. 4/24(18:00-21:00)   1.9[ 5: 62]
 3. 4/24(21:05- 0:05)   1.2[ 4:222]
 4. 4/30( 5:30- 8:30)    .8[ 4: 96]
 5. 4/30(20:05-23:05)    .8[ 6:193]
------------------------------------------------------------------------------------------------

                                    SULFUR DIOXIDE[WS; WD]
                                      24-HOUR
SITE               023

 1. 4/24- 4/25( 4:00)   1.2[ 5:319]
 2. 4/29- 4/30( 0:00)    .4[ 7:170]
 3. 4/21- 4/22(20:00)    .1[ 4:355]
 4. 4/14- 4/15(21:00)    .1[ 6:295]
 5. 4/16- 4/17(11:00)    .0[ 3:313]
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TABLE VI, THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR APR   1-30
               (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
          UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                 WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                 HYDROGEN SULFIDE[WS: WD]
                                        1-HOUR
SITE                  023

 1. 4/20(12:30-13:30)    8.4[10:350]
 2. 4/20(13:40-14:40)    8.3[10:355]
 3. 4/14( 5:50- 6:50)    3.9[ 3:102]
 4. 4/14( 7:30- 8:30)    3.9[ 4: 79]
 5. 4/14( 3:20- 4:20)    3.8[ 4:110]
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                                 TOTAL HYDROCARBONS[WS: WD]
                                      3-HOUR(6-9AM)
SITE                  023

 1. 4/19( 6:00- 9:00)1463.1[ 6:299]
 2. 4/11( 6:00- 9:00)1315.6[ 5:217]
 3. 4/22( 6:00- 9:00)1313.0[ 1:358]
 4. 4/23( 6:00- 9:00)1307.1[ 2:277]
 5. 4/26( 6:00- 9:00)1299.9[ 4:136]
   PRIMARY STANDARD EXCEEDED  24 TIMES AT SITE 023
 SECONDARY STANDARD EXCEEDED  24 TIMES AT SITE 023
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                    TABLE VI. THE FIVE MAXIMUM AVERAGES FOR APR   1-30
                              (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                   UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                          WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                         METHANE[WS: WD]
                                           3-HOUR(6-9AM)
SITE             023

 1. 4/16( 6:00- 9:00)1075.3[ 2:352]
 2. 4/15( 6:00- 9:00)1032.4[ 8:312]
 3. 4/17( 6:00- 9:00)1024.1[ 1: 41]
 4. 4/24( 6:00- 9:00) 956.5[ 2:357]
 5. 4/26( 6:00- 9:00) 954.9[ 4:136]
   PRIMARY STANDARD EXCEEDED  24 TIMES AT SITE 023
 SECONDARY STANDARD EXCEEDED  24 TIMES AT SITE 023
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               TABLE VI. THE FIVE MAXIMUM AVERAGES FOR APR   1-30
                        (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
              UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
                     WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                              NON-METHANE HYDROCARBONS[WS: WD]
                                    3-HOUR(6-9AM)
SITE                023

 1. 4/19( 6:00- 9:00) 554.2[ 6:299]
 2. 4/ 8( 6:00- 9:00) 427.4[ 5:103]
 3. 4/10( 6:00- 9:00) 424.0[10:197]
 4. 4/ 7( 6:00- 9:00) 423.3[ 3: 92]
 5. 4/ 9( 6:00- 9:00) 412.1[11:150]
   PRIMARY STANDARD EXCEEDED  21 TIMES AT SITE 023
 SECONDARY STANDARD EXCEEDED  21 TIMES AT SITE 023
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          TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR APR   1-30
                         (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                    UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                        WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                       CARBON MONOXIDE[WS: WD]
                                         1-HOUR
SITE              023

 1. 4/20( 3:05- 4:05)1530.8[ 2:235]
 2. 4/20( 0:35- 1:35)1150.2[ 0:131]
 3. 4/21(22:05-23:05) 751.6[ 2: 74]
 4. 4/19(19:25-20:25) 745.8[ 2:131]
 5. 4/21(17:50-18:50) 700.9[ 5:178]
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TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR APR   1-30
              (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
          UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                 WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                             CARBON MONOXIDE(WS: WD)
                                8-HOUR

SITE              023

 1. 4/19(20:55- 4:55) 816.8[ 1:162]
 2. 4/21(15:55-23:55) 688.0[ 4:146]
 3. 4/15( 8:55-16:55) 534.5[ 6:303]
 4. 4/16( 5:55-13:55) 531.1[ 3:313]
 5. 4/14(15:55-23:55) 517.4[11:284]
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RADIAN CORPORATION

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TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR APR   1-30
             (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                  UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                      WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                OZONE[WS: WD]
                                  1-HOUR
SITE            023

 1. 4/18(15:40-16:40) 118.5[15:237]
 2. 4/13(15:15-16:15) 117.4[11:228]
 3. 4/13(16:20-17:20) 110.5[ 6:252]
 4. 4/18(12:30-13:30) 110.5[15:207]
 5. 4/18(13:35-14:35) 107.9[16:209]
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                            TABLE VI. THE FIVE MAXIMUM AVERAGES FOR APR   1-30
                          UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER

                                           PARTICULATE
                                             24-HOUR
SITE                023

           1    4/27    36.0
           2    4/10    34.0
           3    4/28    32.0
           4    4/11    25.0
           5    4/19    16.0
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TABLE VII
FUNCTIONAL DEPENDENCE OF RECORDED PARAMETERS UPON WIND DIRECTION

NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

NITROGEN OXIDES(NOX) C-B SHALE OIL PROJECT
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

CONCENTRATION UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
GT 160																		
140 - 160																		
120 - 140																		
110 - 120																		
100 - 110																		
90 - 100																1		1
80 - 90																0		0
70 - 80								1								0		1
60 - 70								0								0		0
50 - 60								0								1	1	2
40 - 50	1							0								0	1	2
30 - 40	3	1			1			0							1	0	0	6
20 - 30	4	3		1	2	2		2		1					0	1	3	19
10 - 20	38	20	9	18	48	57	30	64	68	96	54	30	30	47	59	35	5	708
LT 10	386	172	173	193	335	323	518	504	587	841	836	427	405	500	704	411	132	7447
TOTAL	432	196	182	212	386	382	548	571	655	938	890	457	435	547	764	449	142	8186
MEAN	3.	3.	2.	2.	3.	3.	2.	3.	2.	2.	2.	2.	2.	3.	3.	3.	4.	2.

RADIAN
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```
                    NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

         NITRIC OXIDE(NO)                                                C-B SHALE OIL PROJECT
                             TRAILER NO. -  23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                       WIND DIRECTION
                  N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
CONCENTRATION
  UG/M**3
  GT    160 :                                                                                   :
140 -   160 :                                                                                   :
120 -   140 :                                                                                   :
110 -   120 :                                                                                   :
100 -   110 :                                                                                   :
 90 -   100 :                                                                                   :
 80 -    90 :                                                                                   :
 70 -    80 :                                                                                   :
 60 -    70 :                                                                                   :
 50 -    60 :                                                                                   :
 40 -    50 :                                                                                   :
 30 -    40 :                                                                                   :
 20 -    30 :                                                                            2      :    2
 10 -    20 :    26   10    7   10   23   27   13   42   31   47   21    4   14   30   49   30    2 :  386
   LT    10 :   406  186  175  202  363  355  535  529  624  891  869  453  421  517  715  417  140 : 7798
   TOTAL    :   432  196  182  212  386  382  548  571  655  938  890  457  435  547  764  449  142 : 8186
            ...........................................................................................
    MEAN          2.   1.   0.   1.   1.   1.   0.   1.   0.   1.   0.   0.   2.   2.   2.   2.   1.   1.
```

```
                          NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

       NITROGEN DIOXIDE(NO2)                                               C-B SHALE OIL PROJECT
                              TRAILER NO. -  23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                   WIND DIRECTION
                  N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
 CONCENTRATION
   UG/M**3
   GT    160 :                                                                                     :
 140 -   160 :                                                                                     :
 120 -   140 :                                                                                     :
 110 -   120 :                                                                                     :
 100 -   110 :                                                                                     :
  90 -   100 :                                                                                     :
  80 -    90 :                                                                                     :
  70 -    80 :                                        1                                            :      1
  60 -    70 :                                        0                                       1    :      1
  50 -    60 :                                        0                                       0    1 :      1
  40 -    50 :                                        0                                       0    1 :      1
  30 -    40 :    2    1              1               0                                       0    0 :      4
  20 -    30 :    1    2         1    1    2          2         1                        1    1    3 :     15
  10 -    20 :   19   10    2    8   26   30   17   22   37   49   33   25   16   17    9    5    3 :    328
   LT     10 :  410  183  180  203  358  350  531  546  618  888  857  432  419  530  754  442  134 :   7835
   TOTAL     :  432  196  182  212  386  382  548  571  655  938  890  457  435  547  764  449  142 :   8186
             .........................................................................................................

   MEAN         1.   2.   0.   1.   2.   2.   1.   1.   1.   1.   0.   1.   0.   0.   0.   0.   3.      1.
```

```
                  NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

       SULFUR DIOXIDE(SO2)                                               C-B SHALE OIL PROJECT
                             TRAILER NO. -  23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                     WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
 CONCENTRATION
   UG/M**3
    GT    140 :                                                                                   :
 130 -    140 :                                                                                   :
 120 -    130 :                                                                                   :
 110 -    120 :                                                                                   :
 100 -    110 :                                                                                   :
  90 -    100 :                                                                                   :
  80 -     90 :                                                                                   :
  70 -     80 :                                                                                   :
  60 -     70 :                                                                                   :
  50 -     60 :                                                                                   :
  40 -     50 :                                                                                   :
  30 -     40 :                                                                                   :
  20 -     30 :                                                                                   :
  10 -     20 :                                                              1                    :     1
    LT     10 :  441  209  188  217  402  406  576  588  667  970  906  460  437  547  771  460  148 : 8393

     TOTAL    :  441  209  188  217  402  406  576  588  667  970  906  461  437  547  771  460  148 : 8394
              ..........................................................................................

      MEAN        0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.    0.
```

```
                    NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

       HYDROGEN SULFIDE(H2S)                                      C-B SHALE OIL PROJECT
                            TRAILER NO. -  23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                        WIND DIRECTION
                     N   NNE   NE   ENE    E   ESE   SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW CALM   TOTAL
 CONCENTRATION
   UG/M**3
   GT    140 :                                                                                         :
 130 -   140 :                                                                                         :
 120 -   130 :                                                                                         :
 110 -   120 :                                                                                         :
 100 -   110 :                                                                                         :
  90 -   100 :                                                                                         :
  80 -    90 :                                                                                         :
  70 -    80 :                                                                                         :
  60 -    70 :                                                                                         :
  50 -    60 :                                                                                         :
  40 -    50 :                                                                                         :
  30 -    40 :                                                                                         :
  20 -    30 :                                                                                         :
  10 -    20 :                                                             1                   2       :     3
    LT    10 :   431   207   188   217   402   406   576   588   668   970   906   460   437   547   769   452   148 :  8372
     TOTAL   :   431   207   188   217   402   406   576   588   668   970   906   461   437   547   769   454   148 :  8375
             ............................................................................................................
      MEAN        0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.
```

RADIAN
CORPORATION

```
                     NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

       TOTAL HYDROCARBONS                                                   C-B SHALE OIL PROJECT
                            TRAILER NO. -   23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                             WIND DIRECTION
                      N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW CALM   TOTAL
 CONCENTRATION
   UG/M**3
    GT  4000 :                                                                                                         :
 
3600 -  4000 :                                                                                                         :

3400 -  3600 :                                                                                                         :

3200 -  3400 :                                                                                                         :

3000 -  3200 :                                                                                                         :

2800 -  3000 :                                                                                                         :

2600 -  2800 :                                                                                                   1     :     1

2400 -  2600 :                                                                        1                          0     :     1

2200 -  2400 :                                                                  1     0                          0     :     1

2000 -  2200 :                                                                  0     0                          0     :     0

1800 -  2000 :                                                                  0     0                    1     0     :     1

1600 -  1800 :    8     5     2           1                 1           1     0     0                    0     0     :    18

     LT  1600 :  401   192   174   198   380   390   548   538   650   959   876   446   423   519   721   427   144 :  7986

      TOTAL   :  409   197   176   198   381   390   548   539   650   960   877   447   423   519   722   428   144 :  8008
              ...............................................................................................................
    MEAN/100      12.   12.   12.   12.   12.   12.   12.   12.   12.   12.   12.   12.   12.   12.   12.   12.   12.   12.
```

```
                        NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

          METHANE(CH4)                                                           C-B SHALE OIL PROJECT
                                  TRAILER NO. -  23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                                 WIND DIRECTION
                       N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
  CONCENTRATION
    UG/M**3
    GT  2400 :                                                           1                             :     1

 2200 -  2400 :                                                          0                             :     0

 2000 -  2200 :                                                          0                             :     0

 1800 -  2000 :                                                          0                             :     0

 1600 -  1800 :                                                          0                             :     0

 1400 -  1600 :                                                          0                             :     0

 1200 -  1400 :    2                                                     0                             :     2

 1000 -  1200 :   49   23   19   12   11    9   11   19   19   25   52   30   93  153  196   80   21 :   822

  800 -  1000 :  359  175  157  186  370  381  537  520  631  935  824  416  328  369  535  355  123 :  7201

  600 -   800 :    0    0    0    0    0    0    0    0    0    0    0    0    1    0    1    0    0 :     2

  400 -   600 :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0

  200 -   400 :    0    0    0    0    0    0    0    0    0    0    0    0    1    0    1    0    0 :     2

     LT   200 :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0

      TOTAL   :  410  198  176  198  381  390  548  539  650  960  876  447  423  522  733  435  144 :  8030
              ..........................................................................................

       MEAN     941. 934. 925. 909. 900. 898. 891. 893. 887. 889. 902. 904. 925. 946. 939. 935. 928. 911.
```

```
                        NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

          NON-METHANE HYDROCARBONS                                            C-B SHALE OIL PROJECT
                                 TRAILER NO. -  23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                         WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
 CONCENTRATION
   UG/M**3
    GT  3000 :                                                                                   :

2800 -  3000 :                                                                                   :

2600 -  2800 :                                                                                   :

2400 -  2600 :                                                                                   :

2200 -  2400 :                                                                                   :

2000 -  2200 :                                                                                   :

1800 -  2000 :                                                                                   :

1600 -  1800 :                                                                         1         :    1

1400 -  1600 :                                                                         0         :    0

1200 -  1400 :                                                                         0         :    0

1000 -  1200 :                                                            1            0         :    1

 800 -  1000 :                                                            0         1  0         :    1

 600 -   800 :    8    6    3    1    2    3    2    1         1         1    1         2    1    :   32

    LT   600 :  401  191  173  197  379  387  546  538  650  959  876  446  421  518  719  426  144 : 7971

     TOTAL   :  409  197  176  198  381  390  548  539  650  960  876  447  423  518  722  428  144 : 8006
             .........................................................................................

      MEAN     291. 281. 264. 289. 299. 281. 303. 295. 311. 313. 270. 283. 291. 276. 303. 279. 312. 292.
```

```
                           NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

               CARBON MONOXIDE(CO)                                        C-B SHALE OIL PROJECT
                                  TRAILER NO. -  23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                          WIND DIRECTION
                     N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
     CONCENTRATION
       UG/M**3
       GT  4250 :                                                                                      :

   3750 -  4000 :                                                                                      :

   3500 -  3750 :                                                       1                              :    1

   3250 -  3500 :                                                       0                              :    0

   3000 -  3250 :                                                       2                         2 :    4

   2750 -  3000 :                                                       0                         1 :    1

   2500 -  2750 :                                                       0                         0 :    0

   2250 -  2500 :                                                       0                         0 :    0

   2000 -  2250 :                                       1              0                         0 :    1

   1750 -  2000 :                                       0              1                         0 :    1

   1500 -  1750 :                                  1    0              0                         1 :    2

   1250 -  1500 :                                  0    1              0    1                    2 :    4

       LT  1250 :  202  116  124  103  136  149  233  210  186  272  442  208  211  295  494  272  108 : 3761

        TOTAL   :  202  116  124  103  136  149  234  212  186  272  446  209  211  295  494  272  114 : 3775
                .............................................................................................

        MEAN      446. 451. 442. 437. 438. 434. 481. 444. 423. 436. 458. 442. 477. 479. 464. 453. 603. 458.
```

NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

OZONE(O3)

C-B SHALE OIL PROJECT

TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

CONCENTRATION UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
GT 240 :																		
220 - 240 :																		
200 - 220 :																		
180 - 200 :																		
160 - 180 :																		
140 - 160 :																1		1
120 - 140 :											1	1				0		2
100 - 120 :	63	22	25	15	11	17	27	69	87	161	168	103	47	45	49	46		955
80 - 100 :	230	75	68	88	168	207	289	314	392	487	308	134	136	244	337	209	31	3717
60 - 80 :	133	92	76	88	190	154	179	175	167	254	237	159	173	185	343	193	72	2870
40 - 60 :	17	21	16	20	32	27	80	30	25	62	170	63	80	73	42	20	37	815
20 - 40 :	5	2	3	6	1	1	1	0	0	7	22	2	1	1	0	3	6	61
LT 20 :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
TOTAL :	448	212	188	217	402	406	576	588	671	971	906	462	437	548	772	472	147	8423
MEAN	85.	79.	81.	77.	77.	79.	79.	83.	85.	85.	79.	81.	77.	79.	80.	81.	65.	81.

TABLE VIII
DIURNAL VARIATION OF VARIOUS RECORDED PARAMETERS

RADIAN
CORPORATION

```
                 DIURNAL VARIATION OF NITROGEN OXIDES(UG/M**3)
                  TRAILER NO. - 23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                         HOUR
         1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

  1      *    *    *    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *      0
  2      *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *   11      0
  3      *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *      0
  4      *    *    *    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *      0
  5      *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     :   *:   *    *    *    *    *    *    *      1
  6      *    *    *    *   10    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *      2
  7      *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *      0
  8      *    *    *    *    *    *    *    *    *    *:   *:   *    *    *    *    *    *    *    *    *    *    *    *    *      0
  9      *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *      0
 10      *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *      0
 11      *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *      1
 12      *    *    *    *    *    *    *    *    *    *    *:   *:   *    *    *    *    *    *    *    *    *    *    *    *      1
 13      *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *      0
 14      *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *      0
 15      *    *    *    *    *    *    *    *    *    *:   9    9    9    9   10    9    9    *    *    9    9    *    *    *      5
 16      *    *    *    *   10    *    9    9    9    *    *   10    *    *    *    *    *    *    *    *    *    *    *    *      8
 17      *    *    *    *    *    *    *    9    9    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *      4
 18      *    *    *    *    *    *    *   20    *    *    *     :   *    *    *    *    *    *    *    *    *    *    *    *      2
 19      *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *      3
 20      *    *    *    *    *    *    *    *    *    *:    :    :    :    :    :   *    *    *    *    *    *    *    *    *      2
 21      *    *    *   13   13    *    *    *   14              *    *    *    9    *                                              5
 22                                              :   *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *      1
 23      *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *      1
 24      *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *    *      0
 25      *    *    *    *:   *    *    *    *    *   16   16   17   17    *    *    *    *    *    *    *    *    *    *    *      3
 26      *    *    *   13:  14   13   13   16   13   13   13   16   14   14   14   15   15   14   13   14   13   13   13   14     12
 27     13   13   13    *:   *    *    *    *    *    *         *    *    *    *    *    *    *    *    *    *    *    *    *      2
 28      *    *    *    *:   *    *    *    *    *    *    *    *   13:  16   17   16   17   17   17   17   16   17   17   17      9
 29     17   17   17    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *      2
 30      *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *      0
MEAN     2    2    2    2    2    1    2    2    2    2    3    2    2    2    2    2    2    2    2    2    2    2    2    3

               TOTAL NUMBER OF OBSERVATIONS =  8177     MEAN  =        2.

          * DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

          : INDICATES CALIBRATION DURING THE HOUR
```

DIURNAL VARIATION OF NITRIC OXIDE(UG/M**3)
TRAILER NO. = 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	*	*	*	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	0
2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
3	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	0
4	*	*	*	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	0
5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	:	*:	*	*	*	*	*	*	*	0
6	*	*	*	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	0
7	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
8	*	*	*	*	*	*	*	*	*	*:	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	0
9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
11	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	1
12	*	*	*	*	*	*	*	*	*	*	*:	*:	*	*	*	*	*	*	*	*	*	*	*	*	1
13	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	0
15	*	*	*	*	*	*	*	*	*	*:	9	9	9	*	10	9	*	*	*	9	9	*	*	*	5
16	*	*	*	*	10	*	9	9	9	*	*	10	*	*	*	*	*	*	*	*	*	*	*	*	8
17	*	*	*	*	*	*	*	*	9	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	3
18	*	*	*	*	*	*	*	*	*	*	*	:	*	*	*	*	*	*	*	*	*	*	*	*	1
19	*	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	1
20	*	*	*	*	*	*	*	*	*	*:	:	:	:	:	:	*	*	*	*	*	*	*	*	*	0
21	*	*	*	*	*	*	*	*	*			*	*	*	*	*									0
22									:	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
23	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
24	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
25	*	*	*	*:	*	*	*	*	*	13	13	13	14	*	*	*	*	*	*	*	*	*	*	*	2
26	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
27	*	*	*	*:	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	0
28	*	*	*	*:	*	*	*	*	*	*	*	*	11:	13	14	13	13	14	14	14	13	14	13	14	7
29	13	13	13	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1
30	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
MEAN	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

TOTAL NUMBER OF OBSERVATIONS = 8177 MEAN = 1.

* DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

: INDICATES CALIBRATION DURING THE HO

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                         DIURNAL VARIATION OF NITROGEN DIOXIDE(UG/M**3)
                           TRAILER NO. - 23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                  HOUR
          1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

  1       *    *    *    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *     0
  2       *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
  3       *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *     0
  4       *    *    *    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *     0
  5       *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    :    *:   *    *    *    *    *    *    *     1
  6       *    *    *    *   10    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *     2
  7       *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
  8       *    *    *    *    *    *    *    *    *    *:   *:   *    *    *    *    *    *    *    *    *    *    *    *    *     0
  9       *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
 10       *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
 11       *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *     0
 12       *    *    *    *    *    *    *    *    *    *    *:   *:   *    *    *    *    *    *    *    *    *    *    *    *     0
 13       *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
 14       *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *     0
 15       *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
 16       *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
 17       *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *     0
 18       *    *    *    *    *    *    *   12    *    *    *    :    *    *    *    *    *    *    *    *    *    *    *    *     1
 19       *    *    *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *     1
 20       *    *    *    *    *    *    *    *    *    *:   :    :    :    :    :    *    *    *    *    *    *    *    *    *     1
 21       *    *    *   13   13    *    *    *   10              *    *    *    9    *                                           4
 22                                              :    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *     1
 23       *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     1
 24       *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
 25       *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
 26       *    *    *   13:  14   13   13   16   13   13   13   16   14   14   14   15   15   14   13   14   13   13   13   14    12
 27      13   13   13    *:   *    *    *    *    *    *         *    *    *    *    *    *    *    *    *    *    *    *    *     2
 28       *    *    *    *:   *    *    *    *    *    *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *     1
 29       *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
 30       *    *    *    *:   *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *    *     0
MEAN      1    1    1    1    1    0    1    1    1    1    1    1    1    0    1    1    0    1    1    1    1    0    1    1

                    TOTAL NUMBER OF OBSERVATIONS =  8177    MEAN  =       1.

            * DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

            : INDICATES CALIBRATION DURING THE HOUR
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                 DIURNAL VARIATION OF SULFUR DIOXIDE(UG/M**3)
                   TRAILER NO. - 23   PERIOD( 4/ 1/77 TO  4/30/77)

                                              HOUR
        1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

  1     0    0    0    0    0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0     0
  2     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
  3     0    0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0     0
  4     0    0    0    0    0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0     0
  5     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0     :   0:   0    0    0    0    0    0    0     0
  6     0    0    0    0    0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0     0
  7     0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
  8     0    0    0    0    0    0    0    0    0    0:   0:   0    0    0    0    0    0    0    0    0    0    0    0    0     0
  9     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
 10     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
 11     0    0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0     0
 12     0    0    0    0    0    0    0    0    0    0    0:   0:   0    0    0    0    0    0    0    0    0    0    0    0     0
 13     0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
 14     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0     0
 15     0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
 16     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
 17     0    0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0     0
 18     0    0    0    0    0    0    0    0    0    0    0     :   0    0    0    0    0    0    0    0    0    0    0    0     0
 19     0    0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0     0
 20     0    0    0    0    0    0    0    0    0    0:    :        0    0    0    0:   0     :    :   0    0    0    0    0     0
 21     0    0    0    0    0    0    0    0    0:             0    0    0    0    0    0    0    0    0    0    0    0    0     0
 22     0    0    0    0    0    0    0    0    0:   0:   0    1    0    0    0    0    0    0    0    0    0    0    0    0     0
 23     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
 24     0    0    0    0    0    0    0    0    0:   1    1    1    2    2    2    3    2    1    2    2    2    2    1    0     1
 25     0    1    1    0:   0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
 26     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
 27     0    0    0    0:   0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    0    0    0     0
 28     0    0    0    0:   0    0    0    0    0    0    0    0:   0:   0    0    0    0    0    0    0    0    0    0    0     0
 29     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0     0
 30     0    0    0    0:   0    0    0    1    0    0    0    0    0    0    0    0    0    0    0    0    1    0    0    0     0
 MEAN    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0

                    TOTAL NUMBER OF OBSERVATIONS =  8379     MEAN  =       0.

         : INDICATES CALIBRATION DURING THE HOUR
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RADIAN
CORPORATION

DIURNAL VARIATION OF HYDROGEN SULFIDE(UG/M**3)
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

	HOUR																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	0	0	0	1	0	0	0	0	0	0	0	0	0:	0:	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	:	0:	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0:	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0:	0:	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0:	1	0	0	0	1	1	1	1	1	1	2	2	3	3	1
14	3	3	2	3	3	3	3	3	3	3	1	0	0	0	0	1:	0	0	0	0	0	0	0	0	1
15	1	1	2	1	1	0	0	1	1	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	:	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0:	:		7	8	7	:	:	:	:	0	0	0	0	0	1
21	0	0	0	0	0	0	0	0	0:			0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0:	0:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0:	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0:	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0:	0	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MEAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

TOTAL NUMBER OF OBSERVATIONS = 8358 MEAN = 0.

: INDICATES CALIBRATION DURING THE HOUR

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                      DIURNAL VARIATION OF TOTAL HYDROCARBONS(UG/M**3 X 10**-1)
                         TRAILER NO. - 23  PERIOD( 4/ 1/77 TO  4/30/77)

                                               HOUR
         1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24 MEAN
DAY

   1   106 114 114 105  98 110 112 107  99 108 101 102 112    :118 108 113 117 117 114 116 115 108 114     110
   2   106             118 119 121 119 121 122 114 129 126 126 129 126 122 121 125 126 124 124 125 133     123
   3   128 127 126 127 126 125 128 130 120 135 130 126 132 133 132 132 132 133 129 129 127 126 125 123     129
   4   122 115 122 123 123 123 122 120 126 124 127 128 121     117             114 110             114     121
   5   118 124 123 124 125 122 125 125 117     125 124 131 115 129    :   :108 115 110 101     104 112     120
   6   111 117 117 110 118 116 116 110 119 118 117 121 118 106 118 123 124 125 126 124 124 124 125 124     119
   7   125 124 124 123 123 124 125 128 132 131 122 127 129 131 130 132 133 133 132 129 129 127 127 126     128
   8   125 125 125 125 125 125 126 128 132 133 116 120 124 126 128 128 129 128 127 125 125 125 126 128     126
   9   127 125 125 124 125 126 126 127 129 130 129 128 126 126 126 126 126 127 126 126 125 124 123 124     126
  10   124 124 120 124 123 123 124 129 130 129 128 116 119 126 123 124 126 126 125 124 123 124 126 127     124
  11   127 126 125 126 126 126 128 133 132 123 121 123 125 127 128 128 127 126 121 120 120 120 122 126     125
  12   124 124 122 122 122 123 123 125 129 132 134:   :       : 90: 97  88  88  88  87  92  89  95  91     109
  13    86  97 109 110  98 108 116 118 118 112 103 101 109  93  97  94 100  98  94  99 100 101 109 108     103
  14   108 107 101 101  98  95 102 110 116 110 116 114 112 105  93 109:103 100 101 110 110 101 101 102     105
  15   101 108 113 112 116 115 108 113 104 110 117 119 118 117 135 119 110 102 111 107 110 105 118 112     112
  16   114 122 122 117 113 117 116 124 131 123 116 108 105 114 123 123 111 108 107 116 110 112 105 103     115
  17   104 103 105 103 102 103 103 103 113 102 103: 93  87  91  85  85  86  84  92  87  87  88  85  85      95
  18    89  90  89  87  86  88  89  88  95  88  87    : 86  96 143:132:141 148 145 143 143 145 142 142     111
  19   140 140 141 140 144 142 149 143 145 144 138:   :124 134 134 133 133 135 133 133 132 133 133 132     137
  20   135 136 135 135 136 135 137 137 134    :   :    106 115 122    :   :   :    135 134 139 124 139     131
  21   127 142 147 148 145 144 152 160 152         125 116 120 119 121 125 126 128 128 127 126 126 126     133
  22   126 126 125 125 125 126 128 130 134 129 133 131 124 128 123 120 133 128 142 143 137 130 127 126     129
  23   127 127 127 127 127 125 127 130 134 140 147 142 140 138 138 137 138 135 134 131 130 129 128 127     133
  24   128 127 127 126 126 125 128 130 129 127 132 130 132 132 133 132 132 132 130 130 127 128 128 128     129
  25   127 127 126    :125 125 127 128 121 114 120 126 130 121 122 116 121 125 126 126 127 127 127 126     124
  26   126 126 125    :125 125 126 130 133 134 134 135 130 130 127 124 127 130 130 127 127 127 127 127     128
  27   126 126 125    :125 126 127 129 126 109     108 102 104 109 112 112 109 108 109 108 111 108 107     115
  28   106 107 106    :108 108 108 111 105 108 111 112:101 105 110 110 109 107 108 109 108 107 108 108     108
  29   108 108 108    :107 108 109 110 114 118 109 111 113 116 118 120 121 120 120 118 116 115 115 115     114
  30   114 113 113    :113 112 114 118 121 123 123 123 123 127 122 122 121 120 119 117 116 116 118 117     118
MEAN   118 120 120 120 119 120 121 123 124 121 120 120 118 119 121 120 120 120 120 120 119 119 119 119

                  TOTAL NUMBER OF OBSERVATIONS =  7911    MEAN  =    120.

           : INDICATES CALIBRATION DURING THE HOUR
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DIURNAL VARIATION OF METHANE(UG/M**3 X 10**-1)
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

	HOUR																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	87	87	86	87	87	86	87	86	86	85	85	85	85	:	89	91	90	89	89	89	89	89	88	89	87
2	88				89	89	89	88	89	89	89	91	91	90	91	92	90	90	91	92	93	93	92	99	91
3	100	94	93	94	94	93	95	96	95	98	94	95	93	94	94	94	94	96	95	96	95	94	93	93	95
4	92	91	91	92	91	92	92	92	92	92	93	93	93		92				92	91				92	92
5	92	92	91	91	91	91	91	91	93		93	94	92	93	92	:	:	88	88	87	87		87	87	90
6	87	87	86	87	87	86	87	86	87	86	87	87	87	87	87	86	86	86	86	86	86	86	86	86	86
7	86	86	85	86	86	85	86	86	86	87	87	87	87	87	87	87	87	86	87	86	86	86	86	86	86
8	86	86	86	86	86	86	86	86	86	86	87	87	87	87	86	86	86	86	86	85	85	86	86	86	86
9	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	87	87	87	86	86	85	85	85	86
10	85	85	85	85	85	86	85	86	86	86	86	86	87	86	86	86	86	86	86	85	85	85	79	86	85
11	87	87	87	89	89	88	90	91	89	85	85	84	85	85	86	86	86	86	85	86	85	85	86	87	87
12	87	86	86	86	86	86	86	88	90	90	91:	:	87	:	85:	87	87	87	87	87	86	86	86	86	87
13	86	86	86	86	89	88	88	89	87	86	86	85	85	85	84	85	85	85	85	85	85	84	85	84	86
14	84	84	84	84	84	84	85	84	85	85	85	85	85	85	84	108:	99	99	101	100	100	101	101	100	90
15	100	100	101	101	102	103	103	103	103	99	102	102	103	103	98	99	101	101	101	102	101	101	101	101	101
16	101	103	103	104	104	105	106	105	110	107	104	104	103	103	103	103	103	103	104	105	104	104	103	103	104
17	104	103	104	103	102	103	103	102	102	102	100:	86	86	85	85	85	85	84	85	85	86	86	85	85	93
18	88	90	88	87	86	88	89	87	88	88	87	:	86	86	87:	84:	86	90	87	87	87	87	87	86	87
19	85	86	86	86	88	88	93	89	89	88	87:	:	86	87	87	87	87	88	87	87	87	87	87	87	87
20	88	89	88	88	87	86	87	87	88	:	:		87	87	87	:	:	:		96	96	96	95	95	90
21	94	95	95	95	95	95	95	96	96			94	94	95	96	96	96	96	95	95	95	95	95	95	95
22	95	95	95	95	94	95	95	94	95	97	103	99	97	96	96	96	96	96	105	105	102	96	94	94	97
23	95	95	94	95	95	93	93	94	93	97	102	97	96	96	96	95	95	95	95	95	95	95	95	95	95
24	95	96	95	95	95	95	95	95	95	102	101	97	97	97	96	96	96	96	95	96	96	96	96	97	96
25	96	96	96	:	95	95	95	94	95	96	96	97	97	96	96	96	96	96	95	95	95	95	95	95	96
26	95	95	95	:	94	95	95	95	95	95	96	96	95	96	95	95	94	94	95	94	94	94	94	94	95
27	94	94	94	:	94	94	93	94	94	90		89	89	88	88	88	88	88	88	88	88	88	89	88	90
28	88	88	88	:	88	88	87	88	90	89	89	90:	86	86	85	86	86	86	85	85	85	85	85	85	87
29	85	85	85	:	85	85	85	85	85	85	81	86	87	86	86	86	86	86	86	85	86	85	85	86	85
30	86	87	86	:	86	86	86	86	86	86	87	87	87	87	87	87	87	87	86	86	86	86	86	87	86
MEAN	91	91	91	91	91	91	91	91	91	91	91	91	90	90	90	91	90	91	91	91	91	91	90	91	

TOTAL NUMBER OF OBSERVATIONS = 7924 MEAN = 91.

: INDICATES CALIBRATION DURING THE HOUR

CORPORATION

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          DIURNAL VARIATION OF NON-METHANE HYDROCARBONS(UG/M**3 X 10**-1)
                  TRAILER NO. - 23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                          HOUR
         1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

   1    19   27   27   18   10   23   25   21   13   23   16   17   26      :  29   17   23   28   28   25   26   26   20   25     22
   2    17                  29   30   32   30   33   34   24   38   35   36   37   34   32   31   34   34   31   31   33   34     32
   3    28   33   32   33   32   32   33   34   25   38   36   31   39   39   38   38   37   37   34   33   32   32   32   30     34
   4    30   24   30   30   32   31   30   29   34   31   34   35   28        25                  23   19                  22     29
   5    25   32   32   34   34   31   34   34   24        32   29   38   22   37      :    :  20   28   23   14        17   25     29
   6    25   30   30   24   31   30   30   24   33   31   31   35   31   19   32   37   38   40   40   39   38   39   39   38     33
   7    39   38   39   37   37   38   39   42   46   45   35   40   42   44   44   45   47   46   45   43   43   40   41   40     41
   8    39   39   39   39   39   39   40   42   46   47   29   34   38   39   41   41   43   42   41   40   40   39   40   42     40
   9    41   39   39   38   39   40   39   41   43   44   42   42   40   39   40   39   39   40   39   40   39   40   38   39     40
  10    39   38   34   38   38   37   39   44   44   43   43   30   32   40   36   38   39   40   39   39   38   38   47   40     39
  11    39   39   38   37   37   37   38   42   43   38   36   38   41   41   42   42   41   40   35   34   34   35   36   38     38
  12    38   38   36   36   35   37   37   37   39   42   43:    :         :   5:  10    2    1    1    0    6    2    9    6     22
  13     0   12   23   23    9   20   28   29   30   26   17   15   23    8   13    9   16   13    9   13   16   17   24   23     17
  14    23   22   17   16   14   11   17   26   30   25   31   29   28   20    8    2:   4    1    0   10   10    0    0    2     15
  15     1    8   12   11   14   12    5   10    1   11   15   16   16   15   37   20    9    2   10    6    9    3   16   11     11
  16    13   19   19   13    9   11   10   18   20   15   11    4    2   11   21   20    7    4    4   12    7    8    2    0     11
  17     0    0    2    0    0    0    0    1   11    0    3:   7    1    6    0    0    1    0    7    2    1    1    0    0      2
  18     1    0    2    0    0    0    0    1    7    0    0     :   0   10   44:  47:  55   58   57   56   57   58   56   56     24
  19    54   54   54   53   55   54   56   54   55   57   52:    :  46   47   47   46   46   46   46   46   45   46   46   45     50
  20    47   47   47   47   49   49   50   50   46     :    :       18   28   35     :    :    :        39   37   43   29   44     42
  21    32   47   53   53   50   49   57   64   56             31   22   24   22   25   29   30   33   33   31   30   30   30     37
  22    31   30   30   30   31   31   33   35   39   32   30   32   28   31   26   24   37   33   36   38   35   34   33   32     32
  23    31   32   33   33   33   32   33   36   41   43   44   45   44   42   42   42   43   40   38   35   35   33   33   31     37
  24    32   31   31   31   31   30   33   35   32   25   31   34   35   35   36   36   35   36   35   34   32   31   32   31     33
  25    31   31   30     :  29   29   32   34   26   18   24   29   33   25   25   20   25   29   31   31   31   32   31   31     29
  26    31   31   30     :  30   30   31   34   37   39   39   40   35   34   31   29   32   35   35   33   33   34   33   33     33
  27    32   32   31     :  30   32   33   35   31   19        18   13   16   20   24   24   21   20   21   21   23   19   19     25
  28    18   19   18     :  20   20   21   22   15   19   22   22:  15   20   24   25   23   22   23   24   23   23   23   23     21
  29    23   23   22     :  22   22   24   25   29   32   27   24   26   30   32   34   35   34   35   32   31   30   30   29     28
  30    27   26   27     :  27   26   28   31   34   37   36   36   36   40   35   35   34   33   33   30   31   30   31   30     32
 MEAN   27   29   30   29   28   29   30   32   32   30   29   29   28   29   30   29   29   29   29   29   29   28   29   28

                      TOTAL NUMBER OF OBSERVATIONS =  7909     MEAN  =     30.

            : INDICATES CALIBRATION DURING THE HOUR
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RADIAN
CORPORATION

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                     DIURNAL VARIATION OF CARBON MONOXIDE(UG/M**3 X 10**-1)
                       TRAILER NO. - 23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                           HOUR
          1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24 MEAN
DAY

   1     33   32   33   32   32   32   33   31   31   31   31   31   31       :48   50   46   47   45   46   45   43   44   45      38
   2     45   43   44   42   43   43   41   40                                                                                      43
   3
   4
   5                                                                                 :    :43   41   41   40   40   40   40      41
   6     40   38   39   39   38   39   39   38   38   37   38   39   38                                                             38
   7
   8
   9
  10
  11
  12                                                         :    :         :    :41   41   39   39   39   38   37   38   38      39
  13     36   37   39   37   39   38   38   38   37   38   39   38   38   40   39   38   39   39   38   37   38   38   38   37      38
  14     38   38   38   38   39   38   38   38   39   39   39   39   38   38   39       :53   51   52   51   51   51   50   50      43
  15     50   50   51   51   51   51   52   52   51   58   51   52   52   53   49   55   53   54   54   52   52   52   52   51      52
  16     53   52   53   53   54   50   53   51   53   54   52   52   54   52   52   51   52   52   50   49   50   51   48   49      52
  17     50   48   50   48   48   46   50   49   49   50       :38   39   38   37   38   37   37   37   37   36   38   35   35      42
  18     36   35   36   34   35   34   35   34   35   35   36       :40   41   37  :49  :40   40   40   39   39   39   38   38      37
  19     36   37   38   37   37   37   37   38   37   38   38  :    :46   45   44   44   46   55   57   72   61   49   53   93      47
  20     91   93   67  126   77   49   45   47   53       :    :     36   37   38       :    :65  :56   46   43   65   42   42      59
  21     41   42   42   42   42   41   42   42   41             65   64   60   60   61   61   64   68   67   70   71   74   73      56
  22
  23     52   46   49   46   50   52   50   49   50   49   50   50   51   52   53   49   49   49   48   49   48   46   48   47      49
  24     45   46   43   44   45   45   45   43   45   46   46   44   46   44   43   41   42   42   42   47   41   39   39   40      44
  25     39   38   39  :                                                                                                          39
  26                   :
  27                   :
  28                   :                                            :
  29                   :
  30                   :
MEAN     46   45   44   48   45   42   43   42   43   43   42   45   44   45   45   47   47   48   48   48   47   47   46   48

                         TOTAL NUMBER OF OBSERVATIONS =  3766    MEAN  =      46.

                 : INDICATES CALIBRATION DURING THE HOUR
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RADIAN
CORPORATION

DIURNAL VARIATION OF OZONE(UG/M**3)
TRAILER NO. = 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	90	87	83	83	92	89	90	89	86	96	98	103	103	102:	103	105	105	104	105	101	95	97	95	93	96
2	88	83	83	90	83	78	82	79	78	80	80	80	81	83	88	92	98	98	82	99	96	93	90	79	86
3	81	79	80	73	80	77	74	78	81	82	84:	90	94	95	97	100	101	101	96	91	80	81	85	80	86
4	78	74	76	60	83	78	74	71	79	82	82	80	80	79:	74	74	73	72	71	67	64	63	57	51	73
5	53	56	56	55	51	56	50	51	62	67	70	69	72	74	75	:	77:	79	80	72	70	65	68	66	65
6	65	70	73	69	60	66	68	63	65	83	84	85	85	81:	80	80	79	78	73	65	67	72	73	73	73
7	71	72	68	67	71	72	68	65	69	76:	83	84	83	82	82	83	63	82	77	69	68	68	75	69	74
8	71	70	69	71	74	70	67	66	78	84:	89:	87	89	92	92	93	93	94	88	79	77	79	81	83	81
9	82	82	82	83	83	87	83	88	96	97	98	98	97	96	100	100	101	102	99	91	84	81	78	80	90
10	79	86	78	71	77	79	82	67	91	92	91	91	93	92	96	99	101	101	95	84	86	77	75	76	86
11	75	70	73	69	67	60	60	59	68	85	83:	83	85	85	86	85	87	87	87	76	65	55	55	73	74
12	75	83	75	66	66	67	65	58	59	64	69:	75:	74	76	75	77	78	76	62	49	37	41	50	50	65
13	43	50	44	47	52	42	39	48	64	67:	79	98	106	109	113	116	113	106	98	86	91	94	99	86	79
14	97	83	90	99	98	103	96	95	96	93	99	102	105	103	104	103:	101	96	90	88	93	75	71	72	94
15	69	67	70	69	68	67	70	71	69	66:	62	56	54	55	63	64	65	64	62	60	58	56	52	50	63
16	49	44	49	46	42	50	47	52	53	66	70	71	72	73	75	78	80	82	79	66	51	59	58	62	61
17	61	59	57	56	59	67	61	54	67	81	68:	97	95	93	94	93	89	84	81	75	76	81	74	68	75
18	66	62	54	53	56	51	46	48	74	77	81	:	109	109	107	111	112	74	68	62	64	73	73	77	74
19	75	74	74	73	72	71	71	76	82	65	85:	85	85	84	85	87	86	88	76	61	61	54	58	60	75
20	54	51	56	58	59	60	58	60	63	67:	:		88	93	102:	93:	97	96	85	82	82	79	74	68	73
21	72	68	66	61	64	73	63	65	70			99	98	95	94	93	90	86	87	81	74	80	82	78	79
22	83	81	71	70	59	60	55	66	79:	96:	94	100	101	102	100	98	97	94	90	71	75	83	80	82	83
23	74	70	50	67	71	79	73	73	72	87	93	98	99	100	101	100	100	102	103	100	91	84	80	75	85
24	69	68	83	66	83	65	61	66	82:	96	102	102	102	102	102	103	104	102	95	93	81	81	78	73	88
25	59	65	72	72:	69	77	59	66	91	94	103	105	106	104	103	104	103	101	103	94	91	90	89	93	88
26	93	87	85	84:	67	82	80	83	94	98	102	102	101	102	102	102	104	103	98	88	89	83	85	87	93
27	85	86	80	84:	60	84	51	69	86	101		104	101	97	100	101	102	96	91	96	88	78	73	75	88
28	77	64	60	59:	65	59	49	75	84	93	96	98	101	100	100	96	96	92	87	82	78	78	76	77	81
29	75	73	75	70:	70	65	55	61	75	86	94	97	96	99	98	99	100	98	88	83	80	84	86	82	83
30	82	78	81	85:	86	82	77	79	93	104	104	105	106	105	103	103	104	104	101	88	84	88	88	86	92
MEAN	73	71	71	70	71	71	67	69	76	85	86	91	92	92	93	94	94	91	87	80	77	76	75	74	

TOTAL NUMBER OF OBSERVATIONS = 8408 MEAN = 81.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

HOURLY TOTAL PRECIPITATION(HUNDREDTHS OF INCHES)
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	5
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	2	0	0	0	0	0	8
12	0	1	0	3	1	4	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
13	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	6	3	4	0	0	0	0	0	0	0	0	0	0	13
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	4
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1	0	3	1	4	9	2	0	6	0	6	6	5	1	1	0	1	3	1	0	0	0	0	

TOTAL NUMBER OF OBSERVATIONS = 8554 TOTAL = 50.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF WIND SPEED AT 8 FEET(MPH)
TRAILER NO. = 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	1	2	2	2	3	2	4	2	2	5	8	7	10	7	5	7	7	8	12	6	1	2	3	3	5
2	1	0	4	3	1	2	6	3	6	6	5	7	4	5	7	5	5	6	6	3	1	1	3	1	4
3	0	1	1	1	2	1	2	3	4	7	8	10	12	12	10	11	8	7	3	1	2	2	3	2	5
4	2	2	1	0	0	0	1	1	0	2	4	7	8	6	7	6	3	3	6	3	2	2	1	1	3
5	1	2	2	1	1	1	0	0	0	4	2	1	3	3	3	3	4	2	0	1	2	1	0	1	2
6	1	1	1	2	1	0	1	1	2	2	3	4	5	6	5	6	5	5	3	3	2	3	3	2	3
7	2	1	2	1	1	2	2	2	2	2	4	6	6	6	5	3	4	4	2	3	3	3	2	2	3
8	1	2	1	1	1	1	1	3	6	8	12	11	10	8	11	10	11	8	4	4	5	5	6	9	6
9	8	5	4	2	5	6	7	7	9	13	16	17	18	17	16	16	13	11	6	5	5	5	1	4	9
10	4	4	3	3	3	2	2	8	13	14	14	13	14	14	12	10	10	8	4	4	2	3	3	3	7
11	2	2	2	2	3	4	3	3	6	7	4	3	10	11	13	13	12	14	8	4	2	1	3	4	6
12	3	6	1	1	2	2	1	0	2	6	5	5	4	3	4	3	1	1	0	1	2	3	3	1	3
13	1	0	1	1	1	1	3	4	2	1	4	9	14	15	12	9	6	3	2	3	3	3	2	2	4
14	2	1	2	2	3	2	1	3	4	9	11	13	13	10	12	11	11	9	14	12	9	4	3	3	7
15	1	2	3	3	4	4	6	5	5	5	5	4	3	3	4	5	6	6	4	2	3	4	1	1	4
16	1	1	2	1	0	0	0	1	2	0	0	3	5	6	5	6	4	3	2	1	2	2	1	1	2
17	0	1	1	1	1	0	0	1	1	2	2	3	5	5	4	5	3	6	1	2	5	5	5	4	3
18	2	2	3	3	2	1	0	1	1	2	4	7	13	12	13	10	11	13	12	9	8	10	8	9	6
19	7	6	5	4	5	4	4	5	4	5	8	8	8	7	5	4	2	1	0	0	0	0	0	0	4
20	0	0	0	0	0	0	0	0	4	5	6		9	7	9	9	10	9	5	2	1	2	1	1	3
21	1	1	1	1	0	1	1	1	2			5	5	5	4	3	3	2	3	4	2	2	1	1	2
22	1	1	2	2	2	1	1	1	1	2	4	5	6	5	5	5	4	5	4	1	2	2	2	1	3
23	0	0	0	1	1	1	0	1	3	4	4	6	6	7	5	5	8	6	7	2	2	2	1	2	3
24	0	1	1	1	3	2	1	1	2	3	5	7	8	6	9	9	9	8	6	2	2	2	3	3	4
25	1	2	2	2	1	2	2	2	2	4	3	6	7	9	6	8	7	7	1	2	4	2	2	2	3
26	2	3	2	2	2	2	2	2	4	3	5	11	16	11	10	9	7	5	5	4	3	2	2	1	5
27	3	5	2	2	2	2	0	1	4	6		9	4	5	5	6	10	8	6	8	6	5	2	3	4
28	1	2	2	1	2	1	2	5	4	1	3	12	11	10	13	10	5	6	6	5	1	2	1	2	4
29	2	1	0	2	2	1	1	1	2	3	7	5	10	7	5	4	5	2	5	4	3	2	2	2	3
30	1	3	3	3	3	3	2	3	3	5	7	6	7	6	6	9	9	8	6	3	3	3	4	4	5
MEAN	2	2	2	2	2	2	2	2	3	5	6	7	8	8	8	7	7	6	5	3	3	3	2	2	

TOTAL NUMBER OF OBSERVATIONS = 8541 MEAN = 5.

& INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND SPEED AT 30 FEET(MPH)
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	2	3	3	4	5	3	6	4	3	6	10	9	13	10	6	9	9	11	16	9	3	4	5	5	7
2	2	2	7	6	2	3	8	4	8	8	7	10	6	7	9	7	6	8	9	4	2	2	5	3	6
3	1	3	2	2	4	4	4	4	6	9	11	13	16	16	14	14	11	10	6	2	4	4	5	4	7
4	4	3	2	1	2	1	2	2	0	3	5	9	10	8	9	8	5	4	8	5	4	4	3	2	4
5	2	3	4	2	2	2	2	1	2	6	3	3	4	4	4	5	5	3	0	1	5	3	1	2	3
6	2	2	2	4	2	1	1	2	3	3	4	5	6	7	7	8	6	7	6	6	3	4	5	5	4
7	3	2	4	3	2	2	3	4	3	2	5	8	8	8	7	4	6	6	4	5	6	5	2	4	4
8	1	2	1	2	3	4	4	5	8	11	15	14	13	11	14	13	14	11	6	6	8	7	9	13	8
9	13	10	7	4	9	10	10	11	11	16	20	21	22	21	20	20	17	15	8	7	10	10	2	6	13
10	6	6	4	6	5	4	5	10	16	17	17	16	18	18	15	12	13	10	6	5	2	4	5	6	10
11	4	4	2	3	6	6	4	4	8	10	6	5	13	15	17	17	16	18	11	6	4	2	5	7	8
12	6	9	2	2	4	4	2	1	4	8	7	7	5	4	6	5	2	1	2	2	4	5	5	2	4
13	3	1	2	1	2	2	5	7	4	2	6	11	17	19	15	12	8	5	3	5	7	7	4	3	6
14	5	2	5	4	5	3	3	5	6	12	14	16	17	13	15	14	14	12	19	17	12	8	5	5	10
15	2	3	5	5	6	6	7	8	8	7	7	5	5	5	5	7	8	8	6	4	5	5	2	2	5
16	3	2	3	2	1	1	1	1	4	1	1	5	6	8	7	7	5	5	3	1	2	3	2	2	3
17	1	2	2	2	3	1	0	1	2	3	3	4	6	7	5	7	5	8	3	5	8	8	8	6	4
18	4	4	4	5	3	3	1	1	2	3	5	9	16	15	16	13	15	18	16	13	11	13	11	12	9
19	10	8	7	5	6	5	5	7	6	7	11	10	11	9	8	5	4	2	0	1	3	2	0	0	6
20	0	0	2	1	3	2	3	3	5	7	8		11	10	11	12	13	12	8	4	3	4	3	1	6
21	1	2	2	1	1	3	2	2	3			6	6	6	5	4	4	4	5	7	4	4	2	3	3
22	2	3	3	4	3	2	1	1	2	3	5	6	7	6	6	7	6	7	7	3	2	3	3	1	4
23	0	1	1	2	2	2	1	2	3	5	5	7	8	9	6	6	11	9	10	3	3	3	2	2	4
24	1	1	1	2	3	3	2	1	2	4	6	9	10	7	12	11	12	11	9	4	2	3	4	6	5
25	1	0	2	1	1	3	3	3	2	6	5	7	9	11	8	10	9	10	2	3	6	3	4	3	5
26	4	4	4	3	3	4	3	3	6	4	7	13	19	14	12	11	9	7	7	7	6	3	3	2	7
27	5	8	3	3	3	3	1	2	6	8		11	6	7	7	8	14	12	10	12	10	9	5	6	7
28	1	2	2	3	3	2	3	8	6	2	4	15	15	13	17	13	6	8	9	7	3	4	2	3	6
29	4	2	1	4	4	2	3	3	3	4	9	7	13	9	7	6	6	3	8	6	5	3	3	4	5
30	1	5	5	5	5	5	4	4	5	7	9	8	9	9	8	12	12	10	8	6	6	6	8	8	7
MEAN	3	3	3	3	3	3	3	4	5	6	8	9	11	10	10	10	9	8	7	6	5	5	4	4	

TOTAL NUMBER OF OBSERVATIONS = 8535 MEAN = 6.

* INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF WIND SPEED AT 100 FEET(MPH)
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	3	3	4	5	5	4	7	4	4	7	11	11	15	11	7	10	10	13	20	11	3	5	7	6	8
2	3	3	10	9	3	5	10	5	9	8	8	11	6	8	10	8	7	9	10	6	3	3	6	5	7
3	1	3	3	2	4	5	5	4	7	10	12	15	19	18	15	16	13	11	8	2	3	4	6	5	8
4	3	2	2	2	2	1	2	3	0	3	6	10	11	9	10	9	6	5	10	7	5	5	4	2	5
5	2	4	4	2	1	2	1	1	2	7	3	3	4	4	4	5	6	4	1	1	5	5	1	0	3
6	2	4	3	5	2	1	2	3	3	4	4	6	7	8	7	8	7	8	7	10	4	5	6	5	5
7	2	3	2	2	2	2	5	5	3	2	5	9	8	9	7	4	6	6	5	6	5	5	2	1	4
8	0	2	0	2	2	5	5	6	8	12	17	16	14	12	15	15	16	13	9	7	11	12	14	18	10
9	17	11	9	6	11	12	13	13	13	18	22	24	25	24	23	23	19	17	10	11	13	12	4	7	15
10	8	8	4	8	8	8	7	13	18	20	20	18	21	21	17	14	14	12	8	7	2	3	7	6	11
11	5	3	1	2	5	7	4	5	9	12	7	5	14	17	18	19	18	21	14	7	6	3	7	8	9
12	7	11	3	3	5	5	4	3	5	9	8	8	6	4	6	5	2	1	1	1	3	6	5	2	5
13	3	0	1	1	3	2	6	8	5	3	7	13	20	22	18	14	9	5	4	5	9	11	7	3	7
14	7	2	5	4	6	5	5	6	7	13	16	18	19	15	17	15	16	14	22	19	15	10	7	6	11
15	2	3	6	6	7	7	9	9	8	8	7	6	6	6	6	9	9	9	7	4	6	6	3	2	6
16	3	4	4	3	1	1	1	1	4	1	1	5	7	9	7	8	6	5	4	3	1	1	1	3	4
17	1	3	2	2	1	1	1	1	2	3	4	4	6	7	5	7	6	10	5	7	10	9	9	8	5
18	6	7	4	5	3	1	1	1	2	2	5	10	18	17	19	16	17	21	19	15	13	15	13	14	10
19	11	10	8	6	7	6	6	8	6	8	12	12	12	11	9	6	4	2	0	0	0	0	0	0	6
20	0	0	0	0	0	0	0	1	6	9	9		13	11	12	13	15	14	10	7	6	6	1	1	6
21	1	1	1	2	1	1	0	1	2			7	6	7	5	5	4	5	6	11	6	3	1	1	4
22	1	4	2	3	2	3	1	2	2	3	6	6	7	7	7	7	6	8	10	6	3	4	3	0	4
23	1	1	2	1	0	2	1	2	3	5	5	7	9	10	6	7	12	11	12	4	5	2	2	1	5
24	1	1	1	2	1	3	1	1	3	4	7	10	11	8	13	13	14	13	12	6	2	2	4	6	6
25	1	1	2	1	0	3	3	3	3	6	5	8	10	12	9	11	10	11	3	4	10	4	3	4	5
26	6	4	3	4	2	3	4	4	7	5	8	15	22	16	14	13	10	8	10	12	10	6	5	3	8
27	7	9	3	4	3	4	1	3	6	10		13	7	8	8	9	16	14	12	16	14	12	8	9	9
28	2	1	1	1	4	3	5	10	7	2	4	17	18	14	19	15	7	9	11	9	3	4	2	3	7
29	4	3	1	4	3	3	3	3	4	4	10	7	14	10	7	6	6	3	9	8	5	4	5	7	6
30	1	5	7	7	7	5	5	4	5	8	10	9	9	10	9	14	13	11	11	10	9	11	13	13	9
MEAN	4	4	3	3	3	4	4	4	5	7	9	10	12	11	11	11	10	10	9	7	6	6	5	5	

TOTAL NUMBER OF OBSERVATIONS = 8539 MEAN = 7.

ɨ INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF WIND SPEED AT 200 FEET(MPH)
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	4	4	5	5	5	4	8	5	4	7	12	12	17	11	7	11	11	14	21	15	4	7	8	8	9
2	4	4	12	11	4	7	12	7	10	9	8	11	6	8	10	9	8	10	11	7	3	2	7	6	8
3	1	4	3	2	4	7	6	5	6	9	12	15	19	18	16	17	14	12	8	2	1	4	5	4	8
4	2	1	4	2	2	1	1	2	0	2	6	11	11	10	10	9	6	6	11	7	6	6	4	1	5
5	1	4	4	2	1	1	1	1	2	7	3	2	3	4	4	4	6	4	0	2	5	7	1	0	3
6	1	4	3	4	3	1	5	4	3	4	3	6	7	8	7	8	7	8	8	10	5	4	5	6	5
7	2	2	3	2	1	1	2	4	3	2	4	9	8	9	7	4	6	6	5	4	4	3	2	3	4
8	2	3	1	0	3	5	6	7	8	13	18	17	15	12	16	16	17	14	10	7	10	13	18	20	10
9	17	12	10	7	13	14	17	15	15	19	24	26	27	25	25	24	21	19	12	14	14	14	6	8	16
10	9	9	6	8	10	14	9	14	19	21	21	20	22	23	19	15	15	13	9	8	2	3	7	7	13
11	4	3	1	1	5	9	3	5	10	13	7	5	15	18	19	20	19	22	17	9	9	4	9	10	10
12	9	12	5	4	5	6	4	5	7	9	8	8	6	4	6	5	2	1	1	0	2	6	5	2	5
13	3	1	2	2	2	1	6	10	6	3	8	13	21	23	18	15	10	5	5	4	9	14	11	2	8
14	9	4	7	5	7	7	8	7	7	13	17	19	20	16	18	17	17	15	24	22	17	11	9	7	13
15	3	3	7	7	8	8	9	9	9	8	8	7	6	7	7	9	9	9	7	5	6	7	2	2	7
16	4	4	5	3	0	1	1	1	4	1	1	4	7	9	8	8	6	5	4	4	1	1	1	2	4
17	0	2	1	1	1	0	0	0	1	3	3	4	6	7	5	8	5	10	5	7	11	10	10	8	5
18	7	8	4	6	3	1	1	1	2	2	5	11	20	18	20	17	18	22	21	16	14	17	14	15	11
19	12	10	8	6	8	6	6	9	7	7	12	12	13	11	11	6	5	3	0	1	5	3	2	0	7
20	0	0	3	2	5	4	7	5	5	9	9		13	11	13	14	15	14	12	8	6	6	1	2	7
21	1	0	1	3	3	1	0	0	1			7	6	7	5	4	4	4	7	13	8	2	3	1	4
22	0	3	2	1	2	3	2	1	2	3	6	6	7	6	7	7	6	9	12	9	4	4	3	0	4
23	1	2	0	1	1	1	1	1	3	4	6	7	9	10	6	6	12	11	13	4	6	2	1	0	4
24	0	1	0	2	1	1	0	0	2	4	7	10	11	8	13	13	14	13	13	9	2	2	5	5	6
25	1	0	2	0	0	2	2	2	3	6	5	8	10	13	9	12	11	13	3	6	8	4	1	4	5
26	5	3	3	1	2	3	3	4	7	5	8	17	23	17	14	14	11	8	12	15	13	8	3	3	8
27	9	9	3	2	1	2	2	3	7	10		13	8	8	8	9	18	16	15	18	16	14	10	9	9
28	3	1	1	0	3	2	6	12	7	2	4	19	19	15	20	16	7	9	12	11	3	4	2	4	7
29	4	1	0	3	3	4	1	2	3	4	10	8	14	10	8	6	6	3	10	10	5	3	7	10	6
30	3	4	9	9	9	4	5	4	5	9	11	9	10	10	9	14	14	12	13	11	11	13	14	14	9
MEAN	4	4	4	3	4	4	4	5	6	7	9	11	13	12	12	11	11	10	10	9	7	7	6	5	

TOTAL NUMBER OF OBSERVATIONS = 8538 MEAN = 8.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND DIRECTION AT 8 FEET
TRAILER NO. = 23 PERIOD(4/ 1/77 TO 4/30/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	233	231	284	48	94	130	120	114	121	225	212	235	220	177	186	226	240	189	182	156	84	141	160	157	176
2	104	123	171	167	175	134	187	153	173	199	254	309	300	275	319	296	273	300	328	294	282	263	316	18	250
3	295	296	332	285	289	277	303	283	320	316	338	350	356	358	1	7	356	5	10	48	238	117	164	214	324
4	218	169	154	175	173	146	136	95	129	52	330	346	332	334	329	348	59	333	258	132	82	111	246	128	114
5	133	220	227	258	93	159	204	186	60	8	22	305	323	36	6	328	7	351	99	204	206	303	196	200	263
6	158	119	169	215	134	176	214	86	20	162	133	148	235	216	238	239	204	201	211	225	150	137	165	178	178
7	223	66	107	101	135	209	123	93	73	43	264	229	233	245	192	291	312	239	225	172	215	192	190	245	196
8	195	204	158	199	151	115	91	90	139	192	205	207	217	209	206	214	209	214	207	223	223	215	202	183	190
9	175	166	155	102	141	169	149	133	191	196	186	199	203	197	205	195	200	205	189	202	184	177	125	166	176
10	174	162	104	156	199	165	197	202	197	215	208	216	213	218	224	226	228	247	264	234	174	258	257	250	209
11	246	225	203	239	226	219	228	240	190	289	111	129	193	272	311	309	307	269	207	161	177	69	248	263	230
12	268	252	224	284	252	244	256	338	333	360	3	330	331	300	330	310	254	201	203	216	231	238	239	231	271
13	227	150	203	211	177	215	260	120	159	265	261	234	229	233	218	228	249	272	326	182	191	199	147	66	213
14	151	99	129	118	105	125	101	110	75	172	203	206	193	230	233	240	241	256	314	319	321	310	278	257	197
15	239	251	267	276	303	305	330	312	317	326	310	288	273	287	323	338	329	334	322	303	310	316	264	258	299
16	294	284	300	313	217	195	90	213	322	7	269	293	322	316	335	343	353	345	357	148	229	220	218	185	288
17	246	185	273	150	216	191	172	53	16	340	355	323	354	334	313	244	16	10	46	184	279	33	38	42	337
18	321	309	240	228	194	206	197	6	349	12	349	269	213	215	219	236	257	335	327	323	329	333	338	334	289
19	329	327	327	322	321	316	303	304	313	311	317	321	320	319	320	315	288	125	203	211	213	212	213	212	294
20	212	211	212	212	214	214	213	247	311	328	343		357	3	359	9	357	360	350	59	143	195	214	254	276
21	227	191	192	206	213	228	103	52	12			37	10	330	252	270	143	124	185	207	214	145	88	109	176
22	119	148	215	215	146	213	39	46	6	355	329	303	308	295	326	322	2	353	6	38	208	208	222	196	309
23	174	268	183	263	207	232	197	285	324	322	310	284	341	356	339	315	9	62	82	91	113	223	195	219	272
24	253	210	171	245	223	210	58	355	336	335	325	348	356	25	342	45	2	25	43	67	213	228	233	234	318
25	158	224	218	175	227	156	98	24	267	324	345	355	346	333	274	315	306	311	274	150	222	201	121	150	254
26	190	105	87	97	108	86	100	65	221	319	291	218	185	186	167	253	223	220	231	213	217	335	129	261	186
27	189	150	62	121	77	139	174	103	123	215		210	173	143	171	164	157	144	139	42	140	112	84	146	140
28	227	228	225	210	179	192	223	207	159	255	151	191	189	212	205	205	207	179	163	205	121	133	111	119	188
29	91	103	172	175	171	192	85	95	32	360	349	292	322	342	289	273	258	268	191	191	120	146	213	131	180
30	52	104	145	145	125	102	113	86	73	231	207	206	172	157	187	211	208	222	219	213	222	191	205	200	172.
MEAN	207	190	193	199	178	185	157	89	22	305	294	268	274	276	273	278	278	275	242	188	200	196	197	197	

TOTAL NUMBER OF OBSERVATIONS = 8540 MEAN = 223.

* INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

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                    DIURNAL VARIATION OF WIND DIRECTION AT  30 FEET
                     TRAILER NO. - 23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                  HOUR
         1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24    MEAN
DAY

   1   236 233 281  41  86 123 112 109 115 220 207 231 214 172 186 219 236 183 176 152  84 139 150 150     171
   2    96 126 162 156 168 125 182 147 167 192 262 302 290 269 310 289 266 292 321 289 280 259 306 360     246
   3   289 286 317 276 280 276 292 278 310 308 331 343 348 349 354 359 348 358 360  13 217 109 157 191     315
   4   211 166 156 164 182 167 133  94 149   4 320 337 324 328 322 340  51 324 254 126  79  97 244 117     133
   5   133 220 221 233  72 135 186 191  51 360  19 296 314  24 355 324 351 343  50 176 173 190  40 188       2
   6   145 122 155 197 196 112 156  81  13 137  41 131 224 214 251 234 201 197 201 201 175 122 154 163     167
   7   189  63 111  47  84 189 121  88  53  36 235 223 234 236 188 274 307 242 217 157 202 176 183 236     185
   8   169 195  79 199 146 120  90  86 134 186 200 203 211 203 201 208 205 211 204 207 200 197 191 177     181
   9   166 153 131  97 131 163 141 127 187 190 181 194 195 191 199 190 196 201 182 191 171 173 177 159     171
  10   170 155 111 148 190 203 204 196 192 211 204 209 208 213 219 220 223 243 259 227 166 245 262 251     206
  11   247 226 186 236 215 280 224 234 186 271 102 111 187 265 301 302 300 263 206 163 186  82 250 258     229
  12   263 246 223 276 246 240 261 312 325 354 356 324 323 292 322 300 251 198 208 201 219 235 238 225     265
  13   208 163 197 205 156 213 211 114 154 261 262 225 222 227 214 223 243 264 311 160 176 184 167  78     203
  14   138  94 128 116 104 120 101 102  72 165 197 201 186 224 226 233 234 251 305 309 313 307 282 261     191
  15   239 250 268 273 296 298 322 303 310 319 304 283 272 282 315 332 321 325 312 296 303 307 260 254     293
  16   287 280 294 302 221 194  75 212 314 350 277 287 316 310 327 332 342 338 350  75 225 203 223 171     289
  17   294 139 289  93 210 307 158  42   6 337 341 340 347 324 296 238   3   2  41 163 259  23  32  31     344
  18   328 315 240 235 193 208 159 343 314 358 336 263 207 208 214 229 253 331 323 315 321 326 331 327     283
  19   321 318 320 314 311 307 295 298 304 303 309 314 311 310 317 308 283 116 131 131 131 131 131 131     307
  20   131 131 223 229 255 264 274 273 300 323 334     349 352 352   2 351 355 345  36 120 169 209 287     306
  21   256 174 194 210 272 221  91  44   5          26 345 310 298 264 149 115 181 198 195 131  80 111     185
  22   105 143 205 201  71 204 338  44 343 351 321 294 302 288 339 322 355 344 359  26 159 176 191 158     326
  23    28 323 299 284 201 236 206 274 314 316 304 275 338 321 322 307   2  56  73  76  93 202 172 204     301
  24   282 233 160 269 218 209  68 328 330 327 316 338 352  16 334  27 355  18  35  49 191 225 234 218     313
  25    89 242 201 161 281 139  96  14 265 324 341 348 344 325 268 308 299 302 291 153 204 191 116 138     272
  26   168 102  94  94 105  87  98  80 216 293 282 212 176 168 161 247 217 215 226 206 205 261 120 256     182
  27   187 144  56 110  73 123 150 103 116 209     204 162 137 164 158 150 140 132  34 131 115  69 133     132
  28   188 226 210 202 161 183 229 202 156 276 162 189 183 207 199 201 203 172 155 198 120 126 105 119     182
  29    95  98 158 163 151 194  79  89  21 353 338 288 314 335 282 254 249 264 187 191 118 135 182 145     172
  30    79  97 145 142 137 100 109  80  67 220 200 211 166 157 182 206 203 216 215 201 203 186 194 183     167
MEAN   191 180 190 196 178 186 149  86 353 299 293 264 268 268 271 270 271 270 246 172 181 175 185 182

                    TOTAL NUMBER OF OBSERVATIONS =  8535     MEAN  =     220.

       : INDICATES CALIBRATION DURING THE HOUR
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RADIAN
CORPORATION

DIURNAL VARIATION OF WIND DIRECTION AT 100 FEET
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	267	267	296	57	87	118	110	110	119	220	208	233	215	173	191	223	237	183	175	155	103	150	148	149	173
2	112	137	157	147	157	126	184	146	166	191	253	305	288	271	313	292	267	292	326	301	296	275	312	7	248
3	342	296	319	295	287	298	303	298	313	312	333	346	350	352	357	360	351	360	1	17	257	104	144	177	328
4	233	202	201	165	201	198	127	100	95	14	321	338	328	332	326	342	55	328	257	123	87	82	257	128	122
5	163	248	229	252	360	90	130	162	59	1	16	307	341	9	356	329	355	352	41	84	147	158	54	140	33
6	356	116	128	169	261	67	135	104	22	164	142	139	223	216	245	231	200	196	202	199	202	105	130	136	165
7	187	103	126	8	33	148	124	99	60	27	343	225	246	242	192	292	305	245	224	157	191	148	142	142	165
8	93	169	47	173	150	131	113	103	136	186	199	203	211	204	201	209	205	210	205	213	197	182	182	174	176
9	159	138	116	107	136	160	136	128	191	189	181	194	195	191	198	190	198	201	183	183	170	169	185	164	170
10	163	152	137	146	183	193	206	193	192	210	204	209	209	212	220	220	223	243	265	248	174	306	281	267	208
11	265	252	223	266	228	338	235	237	187	266	105	109	187	265	301	303	300	265	211	172	191	147	259	259	238
12	267	249	250	271	257	250	279	319	333	357	359	328	326	299	324	305	259	196	219	174	248	261	265	261	277
13	230	304	307	1	117	291	296	108	147	252	244	225	221	226	214	224	244	264	308	143	169	178	183	119	225
14	128	130	138	149	126	130	117	108	74	164	197	201	185	224	227	233	235	251	307	312	316	314	297	277	195
15	284	284	279	284	303	304	326	307	316	322	309	290	282	295	321	335	325	328	318	304	310	313	278	267	303
16	302	300	311	322	256	194	64	202	321	349	292	289	317	314	333	336	346	343	353	48	296	190	199	187	306
17	355	89	318	32	248	351	55	47	25	348	347	16	353	328	294	242	9	3	41	142	50	24	37	33	10
18	339	340	276	263	215	236	206	334	8	22	343	271	206	208	215	228	253	335	327	320	326	331	334	329	294
19	325	322	324	320	317	312	301	303	309	307	314	318	316	315	322	314	296	92	155	103	130	298	325	326	316
20	326	326	326	326	325	325	326	302	306	327	339		353	357	354	5	353	358	348	27	100	134	217	356	340
21	325	57	296	101	103	225	87	54	7			32	10	313	277	267	143	112	179	196	184	119	113	87	92
22	72	122	170	199	168	187	339	50	356	344	324	303	311	299	328	324	354	346	1	23	103	140	133	121	8
23	42	18	333	354	171	254	267	270	318	321	310	278	347	334	328	313	5	58	71	66	78	185	182	162	335
24	328	73	180	334	274	233	75	346	342	331	319	340	345	7	338	28	357	20	38	45	115	288	262	237	344
25	59	62	194	5	32	110	107	23	262	327	338	354	352	329	273	312	302	307	311	169	203	183	97	130	350
26	156	121	119	98	95	107	115	104	220	283	287	213	175	190	161	246	222	217	229	211	200	248	106	244	182
27	202	157	25	97	77	93	169	118	122	209		205	155	137	163	156	147	139	133	36	127	114	57	125	131
28	143	184	265	189	146	134	243	204	155	288	170	187	183	208	199	202	204	172	154	194	116	129	137	139	178
29	122	96	143	142	155	196	72	102	23	360	342	292	316	340	288	259	250	270	186	192	125	140	168	157	166
30	156	104	146	143	151	105	117	89	71	223	201	216	164	154	183	206	205	216	218	204	203	187	187	181	171
MEAN	237	137	229	167	176	175	131	97	26	300	296	268	273	273	271	274	274	276	254	158	165	168	183	169	

TOTAL NUMBER OF OBSERVATIONS = 8539 MEAN = 236.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF WIND DIRECTION AT 200 FEET
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	290	297	308	40	90	113	115	124	143	229	220	245	226	187	214	233	249	193	187	167	146	171	159	164	189
2	144	159	163	156	185	147	199	161	179	203	258	315	289	275	319	298	267	298	333	318	313	295	323	360	255
3	4	312	321	324	300	328	329	329	323	319	340	353	356	358	1	4	356	4	5	33	321	97	131	189	344
4	277	279	251	222	234	257	136	99	42	10	327	344	337	340	332	346	55	331	270	116	95	61	279	235	319
5	223	274	264	298	339	51	106	140	61	6	18	314	339	18	351	336	359	358	30	64	128	165	170	128	13
6	314	121	129	159	257	157	136	137	43	161	145	148	231	225	253	241	209	205	213	216	216	101	133	130	177
7	203	132	234	327	347	154	125	112	87	3	246	237	239	242	207	331	318	252	237	173	190	124	156	129	201
8	159	172	162	193	156	160	149	136	148	194	206	213	218	212	210	217	213	217	216	225	205	191	188	184	189
9	170	142	123	130	160	171	146	139	200	198	190	203	202	199	207	199	206	209	192	193	183	178	181	173	179
10	166	164	176	162	184	197	206	201	200	217	212	219	217	219	229	227	231	251	278	280	255	314	301	286	222
11	285	292	11	6	250	333	248	248	198	273	106	118	197	275	310	311	309	275	225	199	218	218	266	263	262
12	271	255	245	266	272	271	295	323	339	360	1	334	329	303	328	310	266	226	257	192	295	289	296	305	291
13	267	322	360	13	90	339	302	107	148	237	258	236	231	236	223	234	254	274	314	126	181	186	188	196	238
14	127	150	168	182	157	155	151	128	88	174	205	211	195	233	237	242	244	261	316	322	328	335	325	299	209
15	352	324	294	298	315	314	330	314	323	333	319	300	293	307	328	339	332	333	326	315	319	323	294	282	316
16	316	319	327	344	207	189	64	150	334	347	317	301	322	321	338	341	349	348	358	45	32	93	158	179	340
17	357	84	292	350	287	273	96	53	38	349	345	351	355	330	307	252	42	5	43	133	54	29	40	35	8
18	352	359	316	286	283	297	255	302	31	16	345	274	216	217	224	236	263	341	332	326	331	335	339	333	307
19	330	326	330	325	325	319	310	309	316	313	319	325	322	321	330	323	314	75	131	102	126	316	330	14	330
20	354	79	302	298	301	322	325	304	313	333	343		359	360	359	6	356	1	354	21	85	122	43	344	350
21	256	168	340	115	132	245	253	264	13			40	23	319	310	281	158	123	191	213	206	171	205	231	223
22	154	122	131	185	205	198	348	41	360	338	332	315	297	307	332	321	360	351	4	22	86	126	125	111	12
23	104	125	360	82	134	261	298	252	324	325	320	281	352	340	336	314	9	61	73	59	68	129	321	195	359
24	356	58	228	330	11	247	273	335	343	336	325	345	349	16	344	22	360	23	42	42	33	340	286	266	346
25	226	95	209	291	148	103	103	100	272	331	332	356	349	333	281	316	308	312	322	201	220	219	47	130	297
26	170	176	204	144	179	182	168	162	229	285	295	220	184	199	169	240	233	229	239	225	214	270	117	241	206
27	226	193	347	75	55	70	228	142	139	216		218	287	144	176	166	155	148	143	33	123	108	55	122	143
28	136	124	334	351	163	145	252	214	167	294	188	196	195	217	207	210	216	181	163	201	137	157	196	225	191
29	169	98	39	157	177	219	77	98	31	352	344	297	319	343	292	267	259	282	194	211	152	142	174	168	204
30	193	148	154	153	167	114	139	120	87	233	212	215	176	165	193	214	214	224	225	215	221	203	198	194	184
MEAN	241	147	277	295	205	210	194	141	30	302	295	276	280	280	281	282	283	287	276	178	171	161	205	205	

TOTAL NUMBER OF OBSERVATIONS = 8540 MEAN = 260.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 8 FEET
TRAILER NO. = 23 PERIOD(4/ 1/77 TO 4/30/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1																									
2																									
3																									
4															13	14	14	12	13	9	7	12	8	9	11
5	6	7	5	17	8	5	6	7	16	13	21	21	23	23	22	17	13	14	11	6	7	11	10	10	12
6	8	8	4	9	8	7	7	12	22	29	32	24	22	21	25	24	21	9	7	5	10	6	9	8	14
7	8	12	12	10	9	9	8	11	31	33	20	20	28	23	17	16	23	28	6	8	14	8	7	4	15
8	12	5	9	6	4	9	8	11	13	14	10	14	17	20	17	12	13	13	6	6	6	4	7	8	10
9	7	7	9	8	10	8	10	13	24	13	12	14	10	12	10	12	13	12	7	5	7	7	17	7	11
10	7	7	10	7	11	15	12	12	12	15	12	13	16	14	14	15	11	12	10	6	5	14	6	6	11
11	5	7	10	10	7	7	8	11	11	10	13	17	14	11	12	8	10	11	11	12	20	9	10	10	11
12	12	9	10	12	6	6	16	8	6	11	9	8	13	13	13	18	13	11	5	7	6	3	6	8	9
13	4	7	5	7	6	11	10	11	9	16	14	15	13	12	14	14	12	14	5	6	5	5	13	6	10
14	10	12	10	6	8	11	14	20	16	15	11	10	11	13	14	13	12	11	9	5	9	4	9	7	11
15	6	9	6	9	9	8	11	10	10	12	11	9	11	11	22	11	8	8	6	8	7	10	8	5	9
16	6	8	11	10	6	7	9	12	11	22	27	20	22	16	16	18	19	14	9	9	8	4	10	5	12
17	11	10	8	5	3	9	6	16	16	26	33	33	18	22	31	20	15	10	9	9	10	17	13	12	15
18	9	8	4	7	10	8	9	16	33	25	27	20	13	16	12	11	13	8	8	7	8	6	11	7	12
19	9	8	9	8	10	7	10	8	9	13	9	9	7	8	7	7	13	19	5	5	3	3	4	5	8
20	4	2	4	4	4	3	3	7	12	13	18		10	18	9	11	12	12	7	8	11	8	7	9	9
21	12	7	7	9	8	8	7	17	20			24	24	25	26	20	15	10	9	7	18	9	19	13	14
22	8	8	10	7	6	11	16	19	26	25	32	28	31	29	23	24	17	8	9	13	5	8	2	9	16
23	10	11	5	9	9	15	7	18	19	18	19	21	28	20	24	30	17	14	20	13	12	7	14	9	15
24	17	11	10	13	4	8	13	16	22	29	23	19	22	21	11	20	6	12	8	8	7	7	2	4	13
25	7	1	4	5	7	3	9	12	23	22	26	19	26	13	15	12	12	11	9	11	6	12	8	8	12
26	10	7	8	7	9	10	11	24	15	22	16	13	10	15	12	19	15	18	7	9	8	20	8	18	13
27	7	8	8	10	8	7	9	11	15	14		15	25	10	11	13	11	11	9	13	10	9	12	8	11
28	7	6	6	3	10	8	12	9	10	30	32	24	10	11	11	13	14	10	9	9	11	8	21	11	12
29	4	5	11	6	7	12	7	11	32	31	14	24	12	18	18	24	18	9	5	10	8	5	10	9	13
30	11	5	9	7	14	3	8	15	19	16	15	26	21	26	16	14	12	11	8	5	4	6	5	3	12
MEAN	8	7	8	8	8	8	9	13	17	19	19	18	17	17	16	16	14	12	8	8	9	8	10	8	

TOTAL NUMBER OF OBSERVATIONS = 7489 MEAN = 12.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 30 FEET
TRAILER NO. = 23 PERIOD(4/ 1/77 TO 4/30/77)

	HOUR																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1																									
2																									
3																									
4															12	9	11	11	9	4	3	7	3	4	7
5	2	2	3	11	7	3	3	7	16	7	19	21	18	14	16	10	13	13	13	4	4	13	12	7	10
6	6	4	4	6	9	6	7	10	13	27	41	20	15	15	11	16	18	8	3	1	9	4	2	3	11
7	10	9	12	4	7	6	5	8	25	28	14	16	28	21	13	16	21	22	3	5	9	4	5	1	12
8	7	6	10	4	4	5	3	8	9	10	6	11	13	16	14	10	9	7	5	1	3	4	3	3	7
9	3	2	3	5	6	3	5	9	23	11	9	10	9	9	7	7	10	9	4	2	4	2	8	4	7
10	3	3	6	3	6	14	8	9	8	10	10	8	12	9	9	12	9	8	5	2	4	7	4	4	7
11	3	5	6	11	5	8	4	7	9	6	8	15	11	7	8	5	5	5	8	12	15	7	5	6	8
12	6	6	6	12	3	2	15	10	6	4	7	7	8	10	7	13	8	6	3	3	3	4	1	7	7
13	3	5	7	3	4	5	6	7	5	12	9	9	7	7	10	10	9	9	4	6	2	2	12	7	7
14	4	7	5	5	6	10	12	20	11	9	7	10	9	11	10	9	10	8	5	5	6	5	3	3	8
15	3	2	3	4	4	3	8	4	5	7	7	5	6	6	7	5	4	4	7	6	5	5	6	6	5
16	5	5	5	6	1	5	5	8	7	15	25	12	17	12	18	14	11	9	3	9	4	3	5	4	9
17	7	6	4	5	4	8	9	12	13	18	21	34	12	21	33	17	14	4	9	7	8	12	9	5	12
18	6	3	2	6	8	4	6	12	25	13	16	16	9	10	7	8	6	6	4	3	4	6	3	6	8
19	6	3	3	5	5	7	4	5	4	6	6	7	6	5	3	4	7	12	1	2	2	1	1	0	4
20	1	1	10	2	2	6	5	7	9	8	16		9	13	11	7	8	6	4	5	6	3	7	7	7
21	10	2	6	7	5	8	3	12	15			18	16	17	16	16	17	5	7	3	20	6	18	9	11
22	4	6	4	5	6	7	12	19	18	23	31	23	22	21	28	19	13	6	4	8	12	5	4	7	13
23	6	9	11	4	4	10	7	12	10	13	16	18	23	14	18	23	13	10	11	10	9	5	11	5	11
24	11	12	11	8	3	3	13	15	16	30	13	14	20	20	7	15	7	9	5	8	8	4	6	2	11
25	13	6	8	10	5	2	3	8	16	15	17	14	18	12	10	10	5	7	6	10	3	10	4	4	9
26	6	3	4	6	8	6	5	22	11	26	11	9	6	13	10	15	11	13	4	3	4	12	6	12	9
27	5	2	6	7	5	4	8	6	12	9		12	29	6	8	8	5	6	5	7	3	6	9	2	7
28	5	2	3	2	10	8	9	7	9	29	21	14	5	10	9	7	12	7	4	7	9	3	18	7	9
29	4	5	7	3	5	8	4	8	21	32	12	22	12	15	13	20	16	5	2	7	6	7	11	7	10
30	19	4	5	6	10	1	6	11	15	15	13	17	16	17	14	11	7	8	5	3	3	3	3	4	9
MEAN	6	5	6	6	5	6	7	10	13	15	15	14	13	13	12	12	10	8	5	5	6	6	7	5	

TOTAL NUMBER OF OBSERVATIONS = 7495   MEAN = 9.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 100 FEET
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1																									
2																									
3																									
4															11	8	10	8	7	2	3	7	6	8	7
5	4	2	3	14	13	2	4	6	14	6	12	14	18	22	14	7	7	8	10	7	2	7	8	10	9
6	2	1	3	9	5	3	6	8	15	19	30	16	11	15	9	14	17	7	6	4	10	3	1	2	9
7	13	13	26	11	7	6	2	4	15	24	19	18	28	19	14	13	16	17	2	4	8	4	5	11	12
8	8	5	15	7	1	3	5	7	7	6	4	7	11	14	11	9	5	6	4	4	3	3	3	1	6
9	1	3	2	5	5	4	3	8	14	6	8	8	9	8	9	7	9	7	4	2	4	2	8	4	6
10	3	2	12	5	4	9	7	5	10	8	7	8	10	10	10	11	10	6	4	5	6	9	3	4	7
11	5	5	13	9	6	10	1	5	7	4	6	11	10	5	6	5	5	6	5	14	14	18	5	2	7
12	5	6	5	10	5	2	9	6	4	3	4	7	7	6	9	10	6	8	3	3	3	5	4	5	6
13	3	5	7	4	3	6	5	6	5	14	17	6	5	5	7	7	7	7	4	5	3	0	11	8	6
14	3	8	5	8	8	10	8	13	8	9	7	8	8	10	9	8	6	6	5	4	5	2	3	7	7
15	9	13	6	2	5	5	5	4	4	6	7	4	8	4	18	5	5	5	5	6	4	3	8	5	6
16	3	4	6	5	2	7	2	3	5	11	19	11	13	11	12	9	12	7	4	2	9	3	6	3	7
17	8	4	6	3	8	6	3	8	19	14	28	31	14	19	29	9	18	7	5	4	7	9	8	7	11
18	4	7	8	3	16	6	4	16	28	27	15	13	9	10	7	7	7	4	1	4	3	4	5	2	9
19	6	1	3	3	5	4	4	3	7	6	4	3	4	4	4	6	8	15	6	2	4	4	4	4	5
20	4	2	5	5	6	4	5	8	8	7	14		6	11	7	5	7	5	6	1	4	3	9	7	6
21	6	4	10	2	4	12	4	14	13			16	16	16	20	14	14	4	7	3	23	9	47	30	13
22	8	2	9	4	14	12	9	14	13	18	14	18	25	15	12	19	13	7	2	7	12	5	3	8	11
23	5	4	4	7	9	9	14	15	10	10	14	15	24	11	16	18	9	9	8	11	8	6	8	4	10
24	9	13	13	11	15	2	10	17	16	20	14	13	9	18	8	13	8	7	5	5	15	12	5	3	11
25	4	2	6	7	3	2	6	11	14	11	15	12	18	9	11	11	8	7	7	17	3	13	5	4	9
26	7	15	26	6	19	25	10	22	9	23	11	5	5	7	8	15	10	12	5	3	3	8	6	15	12
27	3	5	16	10	11	4	7	3	8	7		12	23	4	9	8	4	2	3	7	2	4	5	2	7
28	6	11	8	7	8	5	6	6	7	19	20	7	6	7	8	7	12	6	5	6	12	5	18	13	9
29	8	4	5	5	7	4	6	9	13	16	7	19	9	11	13	15	11	4	2	7	7	4	6	4	8
30	20	13	3	4	7	3	3	10	12	13	12	14	16	15	13	9	8	6	3	2	4	2	2	2	8
MEAN	6	6	9	6	8	6	6	9	11	12	13	12	12	11	11	10	9	7	5	5	7	6	7	7	

TOTAL NUMBER OF OBSERVATIONS = 7488 MEAN = 9.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 200 FEET
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1																									
2																									
3																									
4															9	9	10	9	11	2	2	5	5	11	7
5	8	2	2	11	5	2	2	3	13	5	14	18	21	14	12	7	10	8	17	5	3	3	9	8	8
6	11	2	1	10	6	4	2	3	15	20	40	18	14	13	24	12	14	8	2	1	23	2	1	2	10
7	7	10	22	12	7	3	11	4	21	27	24	19	28	17	26	13	20	17	4	10	9	2	4	4	13
8	1	5	9	7	7	8	5	4	7	8	3	5	10	12	9	7	5	4	3	1	1	1	2	3	5
9	2	2	3	5	9	4	3	8	13	6	7	9	7	8	5	6	9	6	5	4	3	2	5	4	6
10	3	3	8	4	1	5	8	6	5	7	6	8	9	7	10	12	8	6	4	4	9	7	6	6	6
11	8	12	5	6	6	5	8	5	6	6	5	13	8	8	6	4	7	5	5	9	13	10	6	4	7
12	6	4	6	7	3	4	9	3	5	6	4	7	8	8	8	11	7	8	3	6	4	1	5	5	6
13	2	5	4	3	6	8	14	4	5	12	15	6	7	6	6	6	7	7	5	3	2	3	2	7	6
14	1	2	4	4	6	6	12	10	9	7	6	7	9	9	7	7	7	7	4	5	4	5	2	5	6
15	2	9	3	3	2	5	6	7	5	7	5	4	7	3	6	7	4	6	1	3	5	4	5	4	5
16	3	1	3	4	5	11	2	6	3	16	38	14	13	11	12	7	11	10	5	2	3	3	7	3	8
17	9	6	4	4	5	5	5	4	27	13	23	31	12	12	20	16	14	3	6	5	4	11	7	7	10
18	6	2	5	3	14	3	3	17	23	34	15	13	8	8	7	5	5	3	4	5	3	6	5	4	8
19	2	5	7	3	3	4	5	7	6	6	3	5	6	5	6	7	8	13	6	4	3	7	2	3	5
20	5	6	8	4	5	4	8	7	7	5	10		7	8	4	5	7	5	4	3	4	4	5	6	6
21	4	6	3	2	3	5	5	24	15			14	20	16	21	18	15	3	5	2	15	24	24	28	12
22	14	2	5	8	7	7	4	10	17	32	14	18	25	14	28	17	16	5	2	5	8	5	4	5	11
23	2	2	8	4	3	0	5	13	14	10	15	16	16	12	20	14	10	8	8	14	9	8	10	9	10
24	11	12	14	7	7	6	11	26	16	19	13	10	6	17	7	9	3	7	3	3	23	16	5	3	11
25	7	4	3	3	11	2	4	12	11	10	17	12	12	8	7	8	7	6	6	7	5	10	23	3	8
26	7	20	29	33	27	30	23	20	10	29	12	7	5	8	7	13	9	10	2	3	2	11	11	17	14
27	3	4	16	24	24	9	6	5	10	8		9	12	5	5	6	4	4	2	2	3	4	5	3	7
28	5	5	4	3	5	6	8	3	7	17	22	15	7	4	5	4	11	7	4	7	19	16	31	17	10
29	9	11	10	5	5	6	28	10	16	18	10	14	9	7	12	13	10	2	2	8	13	3	2	2	9
30	16	11	3	2	3	6	4	8	12	12	9	16	18	15	12	7	8	7	3	2	2	2	1	1	7
MEAN	6	6	7	7	7	6	8	9	11	14	14	12	12	10	11	9	9	7	5	5	7	6	7	6	

TOTAL NUMBER OF OBSERVATIONS = 7489 MEAN = 9.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF HORIZONTAL WIND DIRECTION STANDARD DEVIATION AT 200 FEET
TRAILER NO, = 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1																									
2																									
3																									
4															10	5	9	7	10	3	1	4	5	7	6
5	5	4	4	14	6	2	1	3	8	4	7	17	19	20	9	9	11	8	23	6	2	2	5	7	8
6	7	3	1	11	7	2	2	2	13	18	37	15	16	29	23	30	43	9	6	1	20	2	2	3	12
7	7	9	18	11	8	3	10	2	19	28	20	16	26	16	21	22	17	17	5	8	9	1	5	3	12
8	3	4	8	7	2	6	5	2	6	3	6	5	7	18	31	7	8	2	3	2	3	3	2	2	6
9	2	3	1	5	6	2	2	9	12	4	5	6	6	6	5	6	5	6	4	2	2	2	5	4	5
10	2	3	7	5	4	1	7	6	6	3	7	9	8	7	8	10	13	5	2	2	5	6	6	5	6
11	7	9	7	6	4	4	7	5	5	6	6	10	9	6	2	3	5	7	10	5	10	8	2	5	6
12	6	11	1	6	7	7	7	5	4	8	4	4	10	5	4	15	7	6	4	3	4	2	5	4	6
13	3	4	6	4	4	16	10	5	2	11	15	4	7	7	6	8	4	7	4	3	3	3	3	8	6
14	1	1	1	4	5	5	9	8	7	6	4	7	8	7	7	13	5	12	4	4	5	3	4	4	6
15	7	10	4	3	1	4	4	5	4	6	3	3	5	6	15	3	5	3	4	5	5	4	4	4	5
16	4	4	1	6	6	7	1	4	4	14	33	13	11	8	10	10	10	8	2	2	5	4	8	2	7
17	7	6	8	8	4	3	2	5	22	14	25	25	12	15	18	16	15	5	6	4	3	10	6	7	10
18	5	3	4	3	18	6	5	13	28	34	14	18	6	8	6	14	5	5	0	5	2	4	2	3	9
19	2	6	3	3	3	6	4	4	3	7	5	5	4	4	4	5	8	11	4	3	4	3	3	3	4
20	8	5	9	4	4	5	4	7	4	5	9		3	9	4	5	8	6	2	3	3	4	3	7	5
21	5	8	5	1	2	6	4	13	14			13	20	14	18	24	11	2	5	2	14	22	22	40	12
22	17	2	2	5	6	3	6	11	25	27	16	15	23	14	21	18	15	6	3	4	8	6	3	5	11
23	2	1	8	3	4	4	8	12	12	10	15	12	22	9	28	16	10	7	9	13	8	6	11	6	10
24	7	15	8	6	7	6	8	23	18	25	14	11	6	16	8	11	7	6	4	3	19	18	3	7	11
25	5	6	3	4	2	2	3	12	12	9	19	13	12	6	7	7	6	5	10	12	5	10	17	2	8
26	7	16	22	33	29	21	17	20	10	25	10	6	6	13	6	15	25	16	1	3	1	12	10	16	14
27	3	4	16	26	23	10	10	4	7	6		11	12	5	4	6	3	3	2	3	2	5	4	2	7
28	5	3	5	9	4	4	5	5	5	18	25	5	4	6	5	5	9	4	2	5	15	12	26	14	8
29	8	9	19	3	4	7	30	8	16	21	13	13	11	8	11	11	8	4	2	8	10	2	2	3	10
30	13	7	2	3	3	7	4	7	13	9	9	13	16	13	10	7	5	5	2	1	3	1	3	2	7
MEAN	6	6	7	7	7	6	7	8	11	13	13	11	11	11	11	11	10	7	5	4	6	6	6	6	

TOTAL NUMBER OF OBSERVATIONS = 7480 MEAN = 9.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF RELATIVE HUMIDITY AT 8 FEET
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	54	54	55	65	81	90	95	96	93	85	89	92	95	99	89	82	76	82	97	98	98	94	97	99	86
2	94	95	93	92	94	95	96	95	93	91	85	92	96	87	92	94	93	85	97	98	98	98	98	99	94
3	99	98	99	98	98	98	98	98	99	96	92	89	84	80	78	77	75	74	76	77	84	86	93	95	89
4	94	93	90	88	85	85	86	86	80	74	72	71	73	70	67	67	72	70	71	83	85	88	89	90	80
5	90	89	90	89	90	89	89	88	86	84	82	80	75	72	69	62	61	59	57	58	61	65	65	67	76
6	68	66	66	67	69	68	69	66	66	57	54	52	51	49	47	45	46	48	49	50	51	48	46	47	56
7	50	48	52	53	52	52	52	56	52	49	46	46	45	46	45	44	45	45	47	47	51	53	51	53	49
8	54	55	54	55	53	53	54	52	49	46	44	44	44	43	43	43	42	42	42	40	43	43	42	40	47
9	41	42	43	43	43	41	42	41	39	38	37	37	36	35	34	34	34	35	37	39	40	40	40	40	39
10	41	41	42	42	43	42	42	39	34	36	36	36	35	35	35	35	34	34	35	37	38	40	41	41	38
11	43	44	46	48	50	58	60	62	67	97	99	92	70	67	68	67	66	77	94	95	95	96	95	95	73
12	96	99	100	100	100	100	100	100	100	100	99	98	95	96	94	91	88	88	91	92	98	98	98	98	96
13	99	99	100	100	100	100	100	100	99	98	96	84	71	77	72	69	68	67	69	70	71	72	69	74	84
14	71	71	69	68	68	64	63	58	53	46	43	44	44	43	42	41	41	42	59	64	63	81	89	90	59
15	92	92	90	89	87	87	92	97	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97
16	100	100	100	100	100	100	100	100	100	99	97	93	93	87	82	78	75	73	74	74	85	87	88	89	91
17	89	91	91	92	90	86	86	82	77	66	61	55	52	45	44	45	50	57	57	61	63	64	64	66	68
18	68	75	82	89	92	94	94	89	86	79	72	59	45	44	44	44	44	70	78	88	96	98	99	99	76
19	97	99	99	100	100	100	100	100	99	97	97	97	99	100	100	100	100	100	100	100	100	100	100	100	99
20	100	100	100	100	100	100	100	100	99	97	88		69	62	55	53	45	42	43	43	46	49	53	54	74
21	54	54	57	56	55	59	59	57	51			40	39	38	38	39	40	40	40	42	45	45	44	45	47
22	44	42	43	42	43	42	45	44	41	39	39	38	37	36	36	36	37	37	38	39	41	42	44	44	40
23	44	44	45	46	47	47	48	47	46	42	40	38	37	36	36	36	36	37	37	38	39	42	43	45	41
24	45	45	47	54	59	60	58	53	51	48	45	41	39	38	37	37	38	38	39	40	43	45	46	49	46
25	48	48	51	51	50	50	53	51	47	42	41	40	40	40	40	38	38	39	40	42	46	46	47	47	45
26	48	50	52	52	52	54	53	50	45	44	42	43	45	43	43	43	43	41	42	46	47	47	47	48	47
27	50	53	55	55	56	55	54	55	52	49		48	68	72	64	59	63	64	66	74	80	80	84	86	63
28	86	90	94	95	96	95	96	83	83	79	75	75	83	73	71	76	75	76	78	81	82	85	85	85	83
29	82	84	84	84	86	87	88	84	74	66	59	53	54	52	51	51	49	48	52	57	60	60	59	62	66
30	63	67	67	66	66	68	67	62	55	48	47	45	42	42	43	42	42	42	43	46	48	48	48	49	52
MEAN	70	71	72	73	73	74	75	73	71	69	67	63	62	60	58	58	57	58	62	64	66	68	69	69	

TOTAL NUMBER OF OBSERVATIONS = 8536 MEAN = 67.

: INDICATES CALIBRATION DURING THE HOUR

CORPORATION

DIURNAL VARIATION OF RELATIVE HUMIDITY AT 30 FEET
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	53	53	53	69	85	96	99	99	97	93	87	89	93	98	86	78	72	80	96	96	95	90	94	97	85
2	92	92	90	88	92	92	94	93	90	88	82	91	94	83	89	92	91	82	95	96	96	95	96	98	91
3	97	97	96	96	96	96	96	96	96	96	89	90	83	79	77	76	75	73	74	75	79	86	94	95	88
4	90	90	87	85	82	82	83	85	80	75	73	72	73	71	68	68	74	71	72	86	88	90	90	91	80
5	91	89	87	87	90	89	89	89	85	82	80	79	73	70	67	59	58	56	55	57	59	63	65	67	74
6	68	67	66	67	69	68	68	68	63	55	52	50	49	47	44	43	44	46	46	48	50	49	47	46	55
7	49	50	53	53	52	51	54	53	50	47	45	44	44	45	44	44	44	44	46	49	52	53	50	53	49
8	50	53	53	53	52	52	53	52	45	42	41	42	41	41	41	40	40	39	39	41	41	40	40	40	45
9	41	42	42	44	44	42	43	42	41	40	40	39	38	37	37	37	37	38	39	41	41	41	42	41	40
10	42	42	44	43	44	44	43	41	39	39	39	39	38	38	38	38	37	37	38	38	39	40	42	43	40
11	47	47	48	50	51	56	59	62	68	97	97	90	67	66	67	67	66	77	97	96	97	97	96	97	73
12	91	95	97	98	100	100	100	100	100	98	99	98	94	95	93	89	87	86	87	90	93	96	97	98	95
13	93	94	96	96	98	99	97	98	96	96	94	81	68	77	71	69	67	67	63	67	66	65	64	68	81
14	66	63	62	63	63	61	61	57	54	46	44	45	45	44	45	44	43	45	57	61	61	80	86	86	58
15	90	90	89	87	85	85	91	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	96
16	100	100	100	100	100	100	100	100	100	100	95	97	91	86	80	76	73	71	71	74	78	80	83	86	89
17	82	86	84	86	80	79	78	78	69	59	55	50	47	45	44	45	49	55	55	57	59	63	62	64	64
18	72	79	84	90	93	95	96	93	86	79	72	60	46	45	45	45	45	68	81	90	97	99	99	100	78
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
20	98	98	97	96	96	97	97	96	96	93	89		66	60	54	52	49	44	45	45	48	50	51	54	73
21	51	52	52	53	51	54	57	57	51			42	41	41	40	41	42	43	42	43	45	45	44	45	47
22	43	42	41	41	41	42	44	46	43	41	41	40	40	39	40	40	40	40	41	41	42	43	43	44	42
23	46	45	47	46	47	46	49	50	48	45	43	39	38	38	38	37	38	39	39	39	40	41	43	43	43
24	46	47	48	54	53	56	53	56	53	50	47	42	41	40	39	39	39	40	41	42	43	43	44	45	46
25	46	46	47	49	48	48	51	52	47	43	42	42	41	41	41	39	39	41	42	44	46	46	47	48	45
26	48	50	52	52	51	53	53	50	47	45	43	44	47	45	44	44	44	42	44	47	47	48	48	48	47
27	50	52	55	55	56	55	52	56	53	50		50	64	69	62	58	62	64	66	74	78	78	83	84	62
28	86	88	91	92	92	93	94	83	79	75	72	73	79	70	69	75	74	75	76	79	80	81	82	82	81
29	82	83	83	82	85	85	88	84	75	67	60	55	56	54	52	52	50	49	53	58	61	60	57	61	66
30	63	67	66	65	65	67	67	64	54	48	46	44	42	42	43	42	41	42	43	45	47	47	47	47	52
MEAN	69	70	70	71	72	73	74	73	71	69	67	63	61	60	58	58	57	58	61	64	66	67	68	69	

TOTAL NUMBER OF OBSERVATIONS = 8540 MEAN = 67.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

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                 DIURNAL VARIATION OF RELATIVE HUMIDITY AT 100 FEET
                  TRAILER NO. - 23  PERIOD( 4/ 1/77 TO  4/30/77)

                                            HOUR
          1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24    MEAN
DAY

   1     56  56  55  69  89 100 100 100 100  98  93  93  97 100  92  83  76  82  97  99  99  94  98 100      89
   2    100 100 100 100 100 100 100 100 100 100  98 100 100  99 100 100 100  97 100 100 100 100 100 100      99
   3    100 100 100 100 100 100 100 100 100 100 100  98  91  86  83  81  80  77  78  79  80  88  98  98      92
   4     92  92  89  88  86  85  85  86  83  79  76  75  75  72  69  68  75  72  73  86  89  92  92  92      82
   5     92  91  89  88  90  91  91  91  88  85  83  81  75  71  68  64  62  60  59  60  61  63  68  67      77
   6     70  69  69  67  70  71  70  71  68  59  55  52  51  49  46  44  45  47  47  46  49  50  48  47      57
   7     48  49  51  52  53  52  54  55  52  48  46  45  45  45  44  44  44  44  45  48  51  53  50  51      49
   8     52  53  54  54  53  54  54  54  49  45  43  44  42  42  42  41  41  40  40  40  40  40  41  41      46
   9     42  42  43  45  45  44  46  45  43  42  41  40  38  37  37  37  37  38  39  40  41  41  42  43      41
  10     43  43  45  45  45  45  44  43  40  40  39  39  38  38  38  38  37  37  38  39  40  40  43  45      41
  11     47  47  48  49  50  57  61  65  70  97  99  95  71  68  69  69  68  78  98  98  99  97  97  99      75
  12    100 100 100 100 100 100 100 100 100 100 100 100 100  99  99  95  92  91  91  91  93  98 100 100      98
  13    100 100 100 100 100 100 100 100 100 100  97  85  69  76  72  69  67  67  67  70  67  65  66  68      83
  14     68  64  64  65  65  64  63  60  57  49  46  46  45  45  45  44  43  44  58  64  64  82  90  92      59
  15     91  91  90  88  87  87  93 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100      97
  16    100 100 100 100 100 100 100 100 100 100 100 100  98  92  85  80  77  74  73  74  79  80  82  84      91
  17     86  90  88  86  86  84  81  83  76  66  60  54  49  47  46  46  50  54  56  56  58  66  66  69      67
  18     72  77  85  91  94  95  96  96  89  82  74  59  47  46  46  45  45  70  82  91  99 100 100 100      79
  19    100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100     100
  20    100 100 100 100 100 100 100 100 100 100  96      70  62  55  52  49  46  46  46  50  50  51  54      75
  21     54  54  56  55  54  57  57  59  56          45  43  42  42  42  43  44  43  43  46  46  45  45      49
  22     44  43  42  42  42  43  44  48  45  43  42  41  40  39  39  40  40  40  40  41  42  43  43  44      42
  23     45  46  47  47  48  47  50  52  51  46  44  41  39  39  38  38  38  39  40  40  42  43  44  44      44
  24     46  47  48  52  54  55  56  57  56  52  48  44  42  41  39  39  40  40  42  42  43  44  46  47      47
  25     48  48  48  50  50  50  51  54  51  46  44  43  42  42  42  40  40  42  42  45  46  46  48  49      46
  26     49  51  52  53  53  53  54  53  49  47  45  46  49  47  46  46  46  44  45  47  47  48  50  51      49
  27     51  54  57  56  57  56  55  56  56  53      52  63  68  64  60  64  67  69  73  79  79  86  87      64
  28     88  89  92  94  94  93  94  84  82  78  74  75  79  72  71  77  76  77  78  80  82  83  83  83      82
  29     85  85  85  85  86  88  88  86  79  71  64  58  58  55  54  54  51  50  54  58  60  58  56  61      68
  30     62  67  67  66  65  67  66  66  58  51  49  46  43  43  44  43  42  42  44  45  46  47  47  47      53
 MEAN     71  72  72  73  74  75  75  75  74  72  70  65  63  62  60  60  59  60  63  65  66  68  69  70

               TOTAL NUMBER OF OBSERVATIONS =  8537    MEAN  =      68.

       : INDICATES CALIBRATION DURING THE HOUR
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DIURNAL VARAITON OF RELATIVE HUMIDITY AT 200 FEET
TRAILER NO. = 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	48	48	47	65	86	92	95	95	94	93	84	84	90	97	87	79	72	80	93	96	96	90	96	99	84
2	95	94	90	89	93	92	94	97	95	93	85	96	99	87	94	98	97	85	96	97	98	96	97	99	94
3	100	98	98	98	98	98	98	98	98	98	97	91	88	82	79	77	76	73	74	74	75	87	97	95	89
4	89	88	84	84	82	81	80	79	78	76	73	73	73	70	66	66	74	70	71	84	87	90	91	92	79
5	90	89	87	86	87	88	89	89	87	84	82	80	74	70	66	62	60	58	57	58	59	59	63	63	74
6	64	63	63	63	66	67	66	66	65	57	54	51	51	49	46	45	46	48	47	46	48	49	47	46	55
7	47	48	49	51	51	50	51	51	52	46	43	42	43	43	42	42	43	43	44	46	48	48	47	48	47
8	51	51	52	52	52	52	53	52	49	43	42	42	41	42	41	41	40	40	39	39	39	39	39	39	45
9	40	41	41	43	43	42	43	43	42	40	40	40	38	37	37	37	38	38	39	40	40	40	41	41	40
10	41	42	43	43	43	42	42	41	39	39	39	39	39	38	38	38	38	38	38	38	39	39	41	44	40
11	45	46	46	46	47	54	58	63	70	96	98	93	66	63	64	64	63	75	97	93	93	91	93	99	72
12	88	95	98	99	100	100	100	100	100	100	97	95	95	94	93	93	90	89	89	89	90	95	97	98	95
13	90	94	97	94	96	96	95	100	97	94	84	79	63	70	67	65	65	64	64	67	63	59	60	61	79
14	66	62	63	65	65	64	62	60	54	47	45	46	46	45	45	44	44	45	58	63	63	84	90	91	59
15	92	90	88	85	85	86	92	95	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	96
16	100	100	100	100	100	100	100	100	100	99	98	97	96	89	83	78	74	71	70	71	75	77	77	77	89
17	84	88	86	83	82	82	78	73	76	62	58	53	48	47	46	46	50	53	55	55	58	66	66	68	65
18	71	76	84	92	94	95	95	95	89	82	74	58	47	46	46	46	47	72	82	88	97	100	100	100	78
19	96	99	100	100	100	100	100	100	100	95	94	94	99	100	100	100	100	100	98	96	93	94	95	100	98
20	99	99	96	97	97	99	95	94	93	91	88		66	58	51	50	46	44	44	44	47	48	48	50	71
21	50	50	51	51	50	51	51	53	53			44	43	42	42	43	44	44	44	43	45	45	44	44	47
22	44	43	42	41	41	42	42	45	42	40	41	40	38	38	38	39	39	39	39	40	40	41	41	42	41
23	45	44	45	46	47	47	48	50	51	44	43	40	39	39	38	38	39	39	40	40	41	42	42	43	43
24	47	48	49	52	51	54	51	57	57	51	47	43	42	41	39	40	40	41	42	42	42	43	44	45	46
25	49	50	49	50	50	50	50	53	48	45	43	43	42	42	42	40	40	42	42	44	45	45	46	47	46
26	47	49	50	51	51	51	52	51	48	47	45	46	48	46	46	46	45	44	45	46	46	46	48	50	48
27	50	51	54	54	54	54	53	54	55	52		52	61	66	63	59	63	66	68	70	75	76	82	86	62
28	88	89	92	93	92	89	88	81	80	77	72	73	76	70	68	75	75	76	76	79	80	81	81	81	81
29	82	82	82	83	84	85	85	84	78	70	62	56	57	54	53	53	50	48	52	56	56	54	53	58	66
30	64	67	65	65	65	67	66	66	57	49	48	45	43	42	43	43	42	42	44	44	45	46	45	45	52
MEAN	69	69	70	71	72	72	72	73	72	69	67	63	62	60	58	58	58	59	61	63	64	66	67	68	

TOTAL NUMBER OF OBSERVATIONS = 8539 MEAN = 66.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF TEMPERATURE AT 8 FEET(DEG F)
TRAILER NO. = 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19.	20	21	22	23	24	MEAN
1	26	26	27	25	24	22	22	23	25	28	30	26	26	25	29	31	31	29	25	25	24	24	24	24	26
2	23	23	22	22	22	22	23	24	24	26	29	25	25	27	25	24	24	25	21	20	20	20	19	18	23
3	17	16	15	14	14	13	13	15	17	19	21	23	25	26	26	26	27	27	24	23	20	23	21	18	20
4	18	19	21	21	22	22	22	25	28	32	35	37	39	40	43	41	40	40	38	35	33	33	31	30	31
5	32	32	32	32	31	32	31	33	35	37	38	39	42	43	43	45	45	45	43	38	35	34	34	32	37
6	30	32	32	30	29	30	29	36	42	46	48	50	53	53	54	55	54	53	49	41	40	42	41	39	42
7	36	38	35	35	36	34	37	42	48	52	54	56	56	56	57	55	56	56	52	46	43	40	41	38	46
8	38	37	38	36	38	38	38	45	54	58	59	61	61	61	62	62	61	60	55	47	43	43	44	48	49
9	46	43	42	41	42	45	46	52	56	58	60	62	65	65	65	64	64	62	57	52	50	50	48	48	53
10	47	48	45	41	43	43	46	52	56	58	59	62	62	63	63	63	62	61	56	49	47	42	44	44	52
11	44	42	39	37	35	34	36	39	39	37	40	44	51	49	49	48	47	41	36	36	36	36	36	35	40
12	35	33	32	30	30	30	30	30	31	33	35	36	37	38	39	40	40	40	38	34	31	31	31	31	34
13	29	29	27	27	28	27	28	29	31	35	38	41	44	42	44	44	44	44	41	37	35	34	35	32	35
14	33	30	32	33	32	35	35	42	47	52	54	55	57	57	57	56	54	51	46	41	37	32	29	28	43
15	28	28	28	29	28	28	27	26	27	29	30	31	30	31	34	35	35	35	35	34	34	34	34	33	31
16	33	33	33	33	33	33	33	33	34	35	37	39	43	45	48	49	49	49	47	44	37	36	36	35	39
17	35	33	34	33	32	34	34	39	46	51	54	56	59	60	61	59	57	55	53	48	46	46	44	42	46
18	39	37	33	32	32	31	32	37	41	45	51	57	59	60	60	59	57	45	39	36	34	33	32	32	42
19	31	31	30	29	29	28	28	28	30	31	31	31	30	29	28	29	29	29	29	28	28	27	27	26	29
20	26	26	26	25	26	27	26	27	30	33	36		43	44	46	46	47	45	42	40	37	34	31	30	35
21	31	30	28	28	28	26	29	36	42			51	53	54	55	54	54	52	52	46	41	41	41	38	41
22	39	40	36	35	36	35	36	42	49	52	56	58	59	60	60	60	60	58	55	52	47	45	42	42	48
23	41	41	38	38	36	36	37	43	48	53	58	62	63	63	63	65	64	63	60	57	52	46	44	43	51
24	43	43	43	41	39	38	39	45	50	55	58	62	62	62	64	65	63	62	58	55	48	45	42	40	51
25	41	40	37	38	39	39	41	47	53	56	59	61	62	62	62	63	63	60	57	53	49	48	47	47	51
26	46	43	42	43	44	42	45	53	58	59	61	61	59	62	63	60	61	62	58	51	50	49	49	49	53
27	46	45	42	44	42	45	48	49	54	58		59	49	51	55	56	53	53	51	47	45	44	43	42	48
28	41	38	37	35	37	37	37	46	47	49	52	50	47	54	54	50	50	50	49	46	45	42	42	42	45
29	41	41	40	39	39	40	40	44	50	53	56	58	58	60	60	61	61	59	56	53	49	48	46	45	50
30	45	42	43	44	44	42	46	52	58	60	63	65	65	65	65	67	66	64	61	55	52	52	52	51	55
MEAN	35	35	34	33	33	33	34	38	41	44	46	49	49	50	51	51	51	49	46	42	40	38	38	37	

TOTAL NUMBER OF OBSERVATIONS = 8541 MEAN = 42.

: INDICATES CALIBRATION DURING THE HOUR

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                         DIURNAL VARIATION OF TEMPERATURE AT 30 FEET(DEG F)
                              TRAILER NO. = 23  PERIOD( 4/ 1/77 TO  4/30/77)

                                                HOUR
        1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24 MEAN
DAY

  1    28  28  28  25  23  22  22  22  24  27  28  25  25  24  28  30  31  29  25  25  24  24  24  24    26
  2    24  23  22  23  22  23  22  23  24  25  28  24  24  27  24  23  23  24  21  20  20  20  19  18    23
  3    17  15  15  14  14  13  12  14  16  17  19  22  23  24  24  25  26  26  25  24  22  22  21  21    20
  4    22  21  22  22  24  24  24  24  28  32  34  37  38  39  42  41  40  40  39  35  34  34  33  32    32
  5    32  33  34  33  32  32  32  33  35  36  37  38  41  42  43  44  44  45  44  42  40  37  35  34    37
  6    33  34  34  33  32  32  33  36  42  46  48  50  52  53  54  55  55  54  52  47  44  44  43  44    44
  7    41  40  38  39  39  40  38  42  48  52  54  56  56  57  57  57  57  57  55  50  46  45  47  43    48
  8    44  41  41  40  42  42  40  46  54  57  59  60  61  61  61  62  62  61  58  53  51  52  51  51    52
  9    49  48  48  45  46  49  47  52  56  58  60  61  64  65  65  65  64  63  61  56  56  55  52  53    56
 10    52  52  50  49  47  46  48  53  56  58  59  61  62  62  63  63  63  62  59  54  52  48  47  47    55
 11    46  45  43  41  40  36  37  39  39  37  39  44  50  49  48  48  47  42  36  37  37  37  37  36    41
 12    35  33  32  31  31  31  31  31  31  33  34  36  37  38  39  40  40  40  40  38  36  34  33  33    35
 13    32  31  30  30  29  29  29  29  32  35  38  40  43  41  43  44  44  44  43  41  39  38  38  35    37
 14    36  35  35  35  35  36  36  42  47  52  54  54  56  56  57  56  55  53  47  41  38  34  31  29    44
 15    29  29  28  28  28  28  27  26  26  28  30  31  31  31  33  35  35  35  35  35  35  34  34  34    31
 16    31  34  34  34  34  34  34  34  34  35  37  39  42  45  47  49  50  50  49  46  44  43  41  39    40
 17    38  36  37  35  36  36  37  40  47  52  54  57  59  61  61  61  58  56  56  53  50  48  46  44    48
 18    41  39  37  35  35  34  35  37  42  46  51  56  59  60  60  60  59  45  39  36  34  32  32  31    43
 19    30  30  29  29  28  28  28  28  29  30  30  30  29  29  28  29  29  29  30  30  29  28  28  28    29
 20   ·27  27  27  27  27  27  27  28  30  33  36      42  43  45  46  47  46  44  42  40  37  36  34    36
 21    34  33  32  32  32  30  30  36  41          51  52  54  55  54  54  54  54  49  45  44  44  43    43
 22    44  43  42  41  40  40  38  43  49  53  55  57  59  60  60  60  60  59  57  55  52  50  50  46    51
 23    45  44  41  41  40  41  39  44  48  53  59  61  63  63  64  65  65  63  61  59  55  53  50  49    53
 24    47  47  47  44  39  42  38  46  51  56  59  61  62  62  64  65  63  63  60  57  54  52  49  47    53
 25    46  45  45  42  42  43  43  47  53  56  59  61  62  62  62  64  63  61  60  56  54  52  50  50    53
 26    50  46  46  46  47  46  47  54  58  61  61  61  59  62  63  61  61  63  61  55  54  52  52  52    55
 27    51  49  46  46  45  48  51  50  55  58      60  52  52  55  58  54  55  53  49  47  47  45  45    51
 28    44  43  41  40  41  39  39  47  48  50  53  52  48  53  54  50  51  51  50  48  47  45  44  45    47
 29    44  43  43  43  42  42  42  45  51  54  57  58  57  60  61  62  62  61  59  55  53  52  51  49    52
 30    45  46  47  48  48  46  47  53  59  61  63  64  65  66  66  67  67  66  63  60  57  57  57  56    57
 MEAN   38  37  36  36  35  35  35  38  41  44  46  48  49  50  51  51  51  50  48  45  43  42  41  40

                  TOTAL NUMBER OF OBSERVATIONS =  8539    MEAN  =      43.

             : INDICATES CALIBRATION DURING THE HOUR
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DIURNAL VARIATION OF TEMPERATURE AT 100 FEET(DEG F)
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	28	27	27	24	22	21	21	21	24	27	28	24	24	23	27	28	30	29	25	25	25	25	23	23	25
2	23	22	22	22	22	22	21	22	23	25	27	24	23	26	24	23	23	23	20	19	19	19	18	18	22
3	16	14	14	13	13	12	13	14	15	16	18	21	22	23	23	24	25	26	25	25	24	23	22	23	19
4	22	22	22	22	23	23	24	24	27	30	33	34	37	39	41	41	39	39	38	35	34	34	32	32	31
5	32	32	33	33	32	32	32	32	34	35	36	37	39	40	41	43	43	44	43	42	41	39	36	36	37
6	34	34	35	35	33	33	33	36	41	45	47	49	50	51	52	53	54	53	52	50	45	45	45	45	44
7	44	42	41	40	40	41	40	41	47	51	53	54	55	55	56	56	56	56	54	51	48	47	49	47	48
8	46	45	43	43	44	43	43	45	53	56	57	58	59	59	60	60	60	60	58	56	57	56	53	53	53
9	52	50	49	46	48	49	47	51	55	56	58	60	62	62	63	63	63	62	60	58	58	57	52	53	56
10	52	52	51	50	47	47	49	52	55	56	57	59	60	60	61	62	62	61	58	55	52	50	48	46	54
11	46	45	44	42	41	36	37	38	39	36	38	42	48	47	47	46	45	41	35	36	36	37	36	35	41
12	34	32	32	31	30	30	30	30	30	32	33	34	35	36	38	39	39	39	39	39	37	35	34	34	34
13	32	31	30	30	29	29	28	28	31	33	37	39	41	39	41	42	43	43	43	41	40	40	38	36	36
14	36	37	37	36	36	36	37	41	45	50	52	53	54	55	55	55	54	51	46	41	37	33	30	28	43
15	28	28	28	28	27	27	25	24	25	27	29	29	30	30	32	34	34	34	34	34	34	33	33	33	30
16	33	33	33	33	33	33	33	33	33	34	36	38	41	43	46	47	48	49	48	47	44	43	42	40	39
17	39	38	38	37	37	37	37	39	46	51	53	55	57	59	60	60	57	56	55	53	50	47	45	43	48
18	41	39	37	36	35	35	35	36	40	44	49	55	57	58	58	58	57	44	38	35	33	31	30	30	42
19	29	29	28	28	27	27	27	27	27	29	28	29	28	27	27	28	28	28	29	29	29	28	27	27	28
20	27	27	27	27	27	27	27	27	29	31	34		40	41	43	44	45	45	44	42	40	39	37	35	35
21	35	35	32	33	33	31	32	35	40			49	50	52	53	53	53	53	52	50	46	46	45	45	43
22	45	44	44	43	43	42	40	42	48	51	54	55	57	58	59	59	59	58	57	54	52	51	51	49	51
23	46	45	43	42	42	42	39	43	47	52	57	59	61	61	62	63	63	62	61	59	55	54	51	51	53
24	48	48	48	45	40	43	39	45	49	54	57	59	60	60	62	63	61	61	59	57	54	53	50	49	53
25	46	47	46	44	44	45	45	47	51	55	57	59	60	60	60	62	62	60	59	56	56	53	52	50	53
26	52	49	49	48	49	48	48	53	56	59	60	59	57	60	61	60	60	62	60	57	57	54	53	51	55
27	52	50	48	49	48	49	51	50	54	57		59	52	52	54	57	53	54	52	49	47	47	46	45	51
28	44	43	42	41	42	41	41	46	47	49	52	50	47	52	52	49	50	50	49	47	47	45	44	45	46
29	44	44	44	44	43	43	43	45	50	53	55	56	56	58	59	60	60	60	58	55	53	53	53	51	52
30	46	47	48	48	48	47	48	52	58	59	61	62	63	64	64	65	66	65	63	62	59	58	58	57	57
MEAN	38	38	37	36	36	36	35	37	40	43	45	47	47	48	49	50	50	49	47	45	44	42	41	40	

TOTAL NUMBER OF OBSERVATIONS = 8539 MEAN = 43.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF TEMPERATURE AT 200 FEET(DEG F)
TRAILER NO. = 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	27	26	26	23	21	20	19	19	21	24	26	23	22	21	25	27	28	27	23	23	23	22	22	22	2
2	21	21	21	21	20	21	20	21	21	22	25	21	21	24	21	20	20	21	18	17	17	17	16	16	2
3	15	14	13	12	12	12	11	12	13	14	15	19	20	20	21	21	22	23	23	23	22	22	21	22	1
4	22	22	22	22	22	23	23	24	25	29	31	33	35	37	38	38	37	37	37	33	33	33	31	30	3
5	32	32	33	33	32	32	32	31	33	34	35	36	38	40	41	42	42	43	43	42	41	40	37	37	3
6	36	36	36	36	33	34	34	36	40	43	45	47	49	50	51	52	52	52	51	50	45	44	45	45	4
7	45	44	42	41	40	42	41	40	46	50	52	53	54	55	55	55	55	55	54	51	48	48	48	47	4
8	46	46	44	45	44	43	43	46	50	54	55	57	58	58	59	60	60	59	58	56	56	55	54	54	5
9	51	50	49	45	47	48	47	50	54	56	57	59	61	61	62	62	62	62	60	58	58	57	53	53	5
10	53	52	50	49	47	49	48	50	53	55	56	58	59	60	60	60	61	60	58	56	53	51	47	45	5
11	45	44	43	42	42	37	36	37	37	34	36	41	47	47	47	46	45	40	34	35	35	36	35	33	4
12	33	30	30	30	29	29	29	29	30	31	32	32	33	34	36	37	37	38	38	37	36	34	33	31	3
13	32	30	30	29	29	28	28	27	30	33	36	39	41	39	41	41	41	42	41	40	40	40	38	37	3
14	38	38	38	36	36	35	36	40	44	49	51	52	53	53	54	54	53	51	45	39	35	31	29	27	4
15	28	28	27	26	25	25	24	23	24	25	27	28	29	30	31	32	33	33	33	33	33	33	32	32	2
16	30	32	32	32	32	32	32	32	32	33	36	37	40	41	44	46	47	47	47	46	44	43	42	41	3
17	40	38	38	39	38	38	39	40	44	49	52	54	56	58	59	59	57	56	55	53	49	46	44	42	4
18	40	38	36	34	34	34	34	35	39	43	48	54	57	57	57	57	59	44	38	34	32	30	29	29	4
19	27	27	27	27	26	26	26	25	26	27	27	27	26	26	26	26	27	27	28	28	29	28	27	26	2
20	26	26	27	26	26	25	26	26	27	30	33		39	41	42	43	43	43	42	41	39	38	36	34	3
21	35	35	33	34	34	33	32	34	38			47	49	51	52	52	52	52	52	49	45	45	45	44	4
22	45	45	45	44	43	43	42	42	48	50	52	54	56	57	58	58	58	58	56	54	52	51	50	49	5
23	48	48	44	43	42	42	40	42	45	51	55	58	60	61	62	63	62	61	60	58	55	53	51	50	5
24	48	48	47	46	40	42	39	44	48	53	56	59	59	60	61	62	61	60	59	57	54	53	50	49	5
25	46	46	46	45	44	46	46	47	51	54	56	58	59	60	58	61	60	59	58	56	56	53	52	51	5
26	51	49	49	48	49	48	49	51	55	57	58	58	56	59	59	58	59	61	60	57	58	55	53	51	5
27	52	51	48	49	49	49	50	50	53	56		58	52	51	54	55	52	52	51	48	47	47	45	44	5
28	43	42	41	41	41	41	42	45	46	48	50	49	46	51	51	48	49	49	48	46	46	44	44	45	4
29	44	44	44	43	43	43	43	44	49	52	54	56	55	57	57	58	59	59	57	55	54	54	54	52	5
30	49	47	48	48	47	46	48	50	56	58	59	61	62	63	63	65	64	63	62	61	59	58	59	58	5
MEAN	38	38	37	36	36	35	35	36	39	42	43	46	46	47	48	48	49	48	46	45	43	42	41	40	

TOTAL NUMBER OF OBSERVATIONS = 8539 MEAN = 42.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

HOURLY TOTAL SOLAR RADIATION(LANGLEY)
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	0	0	0	0	0	0	1	6	16	32	47	16	12	16	36	26	24	7	0	0	0	0	0	0	239
2	0	0	0	0	0	0	1	6	10	23	48	21	19	23	17	11	14	5	0	0	0	0	0	0	198
3	0	0	0	0	0	0	2	26	39	25	40	45	66	67	46	33	33	15	3	0	0	0	0	0	440
4	0	0	0	0	0	0	5	9	23	53	59	70	75	48	62	23	16	8	0	0	0	0	0	0	451
5	0	0	0	0	0	0	2	10	20	23	29	39	50	38	25	39	23	15	1	0	0	0	0	0	314
6	0	0	0	0	0	0	7	24	41	56	67	74	75	72	63	49	32	15	2	0	0	0	0	0	577
7	0	0	0	0	0	0	7	24	41	55	68	65	68	50	31	23	26	18	1	0	0	0	0	0	477
8	0	0	0	0	0	0	8	24	41	56	67	75	76	70	63	50	34	16	2	0	0	0	0	0	582
9	0	0	0	0	0	0	8	26	43	58	69	76	78	73	63	50	34	16	1	0	0	0	0	0	595
10	0	0	0	0	0	0	9	26	43	58	69	75	77	71	62	49	38	19	2	0	0	0	0	0	598
11	0	0	0	0	0	0	8	8	3	17	25	60	72	38	41	38	16	1	0	0	0	0	0	0	327
12	0	0	0	0	0	0	1	3	8	17	15	23	21	15	25	19	14	5	1	0	0	0	0	0	167
13	0	0	0	0	0	0	0	4	5	27	39	47	60	59	64	37	17	11	1	0	0	0	0	0	371
14	0	0	0	0	0	0	9	27	44	57	69	76	81	65	63	45	22	9	2	0	0	0	0	0	569
15	0	0	0	0	0	0	1	6	9	13	13	10	12	14	11	10	5	5	1	0	0	0	0	0	110
16	0	0	0	0	0	0	1	3	7	21	23	46	67	70	64	51	36	19	3	0	0	0	0	0	411
17	0	0	0	0	0	0	10	27	43	58	69	76	78	72	61	17	8	12	3	0	0	0	0	0	534
18	0	0	0	0	0	0	11	27	43	57	66	70	48	56	40	29	25	7	2	0	0	0	0	0	481
19	0	0	0	0	0	0	1	3	7	12	12	9	10	9	9	8	4	5	1	0	0	0	0	0	90
20	0	0	0	0	0	0	3	15	57	40	53	28	61	48	65	42	36	18	3	0	0	0	0	0	469
21	0	0	0	0	0	1	12	30	42	25	13	72	79	76	52	18	14	9	5	0	0	0	0	0	448
22	0	0	0	0	0	1	12	29	46	60	54	78	79	75	63	48	32	13	3	0	0	0	0	0	593
23	0	0	0	0	0	1	12	30	46	61	72	80	80	73	69	59	45	22	2	0	0	0	0	0	652
24	0	0	0	0	0	1	13	29	46	60	71	79	68	47	67	58	32	23	4	0	0	0	0	0	598
25	0	0	0	0	0	1	12	27	41	60	71	79	75	41	32	31	26	9	2	0	0	0	0	0	507
26	0	0	0	0	0	1	12	31	38	46	35	35	46	58	49	13	33	19	3	0	0	0	0	0	419
27	0	0	0	0	0	1	6	13	17	22	6	21	3	34	32	16	18	14	2	0	0	0	0	0	205
28	0	0	0	0	0	1	12	12	12	37	26	16	27	67	38	22	21	17	4	0	0	0	0	0	312
29	0	0	0	0	0	0	6	23	38	56	76	66	51	77	50	54	30	10	4	0	0	0	0	0	541
30	0	0	0	0	0	1	14	29	47	41	69	81	83	61	51	55	39	20	4	0	0	0	0	0	595
TOTAL/10	0	0	0	0	0	0	20	55	91	122	144	160	169	158	141	102	74	38	6	0	0	0	0	0	

TOTAL NUMBER OF OBSERVATIONS = 8555 TOTAL = 12670.

: INDICATES CALIBRATION DURING THE HOUR

TEMPERATURE CHANGE FROM 30' TO 100' (DEG F*10)
TRAILER NO. = 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	2	0	0	-2	-5	-4	-4	-5	-6	-10	-10	-6	-7	-6	-7	-8	-8	-7	-2	-1	0	0	0	-3	-5
2	-2	-1	0	0	0	0	-3	-4	-5	-7	-10	-8	-6	-7	-6	-6	-6	-4	-4	-3	-3	-3	-1	0	-5
3	-1	-2	-3	-2	-2	0	0	-4	-7	-11	-10	-9	-11	-11	-9	-8	-8	-5	-1	0	13	0	0	13	-4
4	9	12	4	1	1	3	6	2	-5	-10	-12	-13	-11	-9	-11	-9	-8	-6	-5	-2	-2	0	0	1	-3
5	2	0	0	2	2	0	0	-2	-6	-8	-7	-8	-9	-10	-9	-10	-9	-8	-6	0	10	18	5	20	-1
6	13	10	8	26	19	8	9	0	-7	-10	-12	-13	-15	-16	-15	-14	-13	-9	0	27	19	7	16	13	1
7	25	19	30	16	8	11	15	-4	-8	-9	-13	-16	-15	-14	-12	-10	-11	-11	-1	10	12	21	16	31	3
8	21	32	20	27	21	17	26	0	-11	-13	-16	-18	-18	-18	-17	-16	-14	-9	-1	30	52	40	22	19	6
9	22	16	12	10	15	0	0	-8	-12	-15	-19	-20	-23	-22	-20	-18	-14	-10	-2	11	20	11	10	4	-2
10	8	3	9	11	5	15	2	-7	-12	-16	-17	-20	-20	-19	-19	-15	-14	-11	-3	7	11	20	6	0	-3
11	0	2	13	19	20	4	0	-6	-6	-4	-7	-9	-14	-8	-13	-13	-10	-8	-2	0	0	2	0	-3	-2
12	-4	-5	-2	-3	-2	-2	0	-2	-5	-7	-6	-8	-7	-8	-8	-8	-7	-7	-4	5	11	6	4	6	-3
13	6	1	2	0	0	4	0	-6	-6	-9	-9	-9	-11	-11	-12	-10	-8	-7	-3	7	15	18	8	15	-1
14	10	22	14	12	11	3	3	-5	-9	-12	-15	-16	-19	-16	-16	-13	-10	-8	-6	-3	-1	0	0	0	-3
15	0	0	-2	-3	-4	-4	-5	-6	-6	-6	-6	-5	-6	-5	-7	-7	-6	-7	-5	-5	-5	-5	-5	-6	-6
16	-4	-5	-5	-5	-5	-6	-6	-6	-7	-7	-8	-10	-11	-13	-12	-11	-10	-9	-7	0	2	7	15	17	-5
17	12	14	12	24	5	6	9	-3	-6	-10	-12	-12	-13	-14	-13	-11	-8	-5	-3	6	6	-3	-2	-3	-1
18	0	5	3	4	9	13	5	-5	-9	-9	-12	-14	-16	-16	-15	-12	-12	-10	-8	-7	-7	-6	-6	-6	-6
19	-6	-6	-6	-5	-5	-4	-5	-7	-8	-7	-8	-7	-6	-5	-5	-5	-5	-6	-2	-1	2	0	0	-3	-5
20	-1	0	3	2	0	-1	0	-3	-8	-9	-10		-12	-12	-13	-11	-11	-8	-2	1	2	18	16	12	-2
21	8	20	7	17	9	16	23	-2	-7			-14	-13	-15	-15	-11	-9	-7	-7	7	12	13	10	19	2
22	7	12	21	24	27	21	16	-5	-8	-10	-13	-15	-16	-15	-15	-14	-11	-9	-3	-1	3	7	7	24	0
23	15	11	20	8	14	14	7	-8	-11	-12	-15	-17	-17	-15	-14	-15	-15	-11	-7	-5	0	5	15	15	-2
24	9	9	7	10	11	5	7	-7	-9	-12	-15	-16	-15	-13	-17	-16	-12	-11	-4	-3	5	8	8	14	-2
25	9	11	18	23	18	24	21	-1	-11	-13	-14	-16	-15	-15	-14	-15	-12	-8	-4	0	21	14	17	10	1
26	15	23	27	27	18	23	16	-6	-13	-13	-12	-14	-16	-16	-15	-10	-11	-10	-5	18	23	16	10	0	2
27	14	13	19	20	27	13	0	0	-10	-12		-12	0	-5	-11	-10	-9	-8	-4	0	2	3	1	3	1
28	0	6	10	6	10	16	11	-4	-8	-10	-12	-13	-7	-14	-14	-11	-11	-10	-7	-4	-3	-1	3	2	-3
29	2	7	6	6	11	5	14	0	-10	-11	-17	-18	-16	-15	-16	-17	-13	-9	-5	0	4	12	16	14	-2
30	6	13	11	8	7	13	6	-8	-12	-14	-18	-19	-19	-18	-15	-18	-15	-12	-4	15	17	12	10	12	-2
MEAN	6	8	8	9	8	7	5	-5	-9	-11	-13	-14	-14	-14	-14	-13	-11	-9	-5	3	7	7	6	8	

TOTAL NUMBER OF OBSERVATIONS = 8527 MEAN = -2.

: INDICATES CALIBRATION DURING THE HOUR

TEMPERATURE CHANGE FROM 30' TO 200' (DEG F*10)
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	-6	-8	-11	-15	-18	-21	-21	-22	-19	-26	-26	-18	-20	-22	-23	-24	-24	-21	-10	-13	-13	-13	-13	-17	-19
2	-14	-14	-6	-8	-12	-9	-18	-20	-22	-23	-24	-23	-21	-22	-23	-22	-22	-20	-21	-18	-21	-19	-16	-11	-19
3	-15	-15	-20	-16	-19	-8	-12	-18	-23	-25	-39	-30	-27	-30	-28	-27	-27	-23	-16	-12	2	-10	-7	3	-19
4	0	2	-3	-7	-9	-4	-1	0	-20	-25	-27	-30	-27	-25	-26	-23	-22	-19	-17	-9	-12	-7	-5	-4	-14
5	-3	-7	-8	-4	0	-4	-8	-14	-21	-23	-22	-23	-23	-24	-22	-24	-22	-20	-18	-4	5	23	11	20	-10
6	24	23	17	27	13	11	8	-2	-19	-24	-25	-26	-28	-28	-28	-25	-24	-20	-7	26	16	6	19	16	-2
7	32	26	35	10	5	18	26	-5	-21	-22	-25	-27	-26	-24	-23	-20	-22	-21	-9	8	12	30	13	38	-0
8	32	44	34	43	28	18	30	4	-24	-25	-23	-26	-27	-28	-26	-23	-22	-18	-8	28	48	38	34	28	6
9	23	17	8	11	14	0	0	-19	-22	-24	-29	-22	-25	-28	-20	-23	-20	-17	-8	14	19	15	12	0	-5
10	11	2	6	8	5	27	0	-16	-21	-15	-21	-20	-18	-18	-18	-22	-21	-19	-9	15	13	23	2	-7	-5
11	-8	-4	4	15	16	2	-7	-19	-17	-16	-21	-24	-28	-7	-10	-8	-12	-17	-15	-7	-4	-1	-8	-17	-10
12	-17	-22	-15	-16	-13	-12	-10	-13	-17	-22	-22	-23	-22	-22	-23	-22	-21	-20	-17	-3	4	0	0	-2	-15
13	1	-7	-4	-10	-9	-4	-7	-17	-18	-20	-22	-18	-8	-6	-15	-19	-21	-20	-14	0	17	23	10	26	-7
14	21	27	19	10	9	2	3	-18	-24	-24	-20	-22	-30	-22	-14	-16	-16	-13	-11	-15	-14	-10	-4	-11	-8
15	-4	-9	-14	-17	-20	-21	-22	-22	-22	-24	-23	-19	-19	-17	-21	-21	-21	-21	-19	-18	-17	-18	-18	-19	-19
16	-18	-17	-17	-17	-16	-19	-19	-19	-22	-21	-22	-24	-26	-27	-27	-25	-23	-20	-18	-7	0	1	16	28	-16
17	23	23	20	35	9	6	15	5	-19	-23	-25	-25	-26	-26	-24	-20	-14	-11	-9	2	0	-14	-13	-13	-5
18	-6	0	0	0	1	6	1	-16	-23	-23	-25	-22	-20	-22	-15	-17	-11	-19	-17	-20	-21	-21	-22	-22	-14
19	-22	-22	-22	-21	-20	-19	-18	-23	-27	-23	-24	-23	-22	-21	-20	-20	-19	-19	-15	-13	-5	-3	-6	-15	-19
20	-12	-10	-4	-6	-9	-11	-9	-16	-22	-25	-26		-28	-28	-29	-25	-25	-21	-12	-2	-2	12	11	12	-13
21	5	20	8	17	16	27	28	-7	-20			-28	-26	-27	-28	-21	-20	-17	-16	11	14	9	6	15	-1
22	2	13	20	28	23	26	30	-12	-21	-22	-26	-27	-28	-27	-27	-25	-22	-19	-10	-6	0	2	2	23	-4
23	32	36	30	17	16	14	11	-15	-23	-24	-27	-28	-30	-27	-26	-25	-26	-22	-16	-12	-5	0	12	12	-5
24	8	13	3	17	11	2	9	-17	-21	-24	-27	-28	-28	-25	-27	-29	-23	-22	-12	-8	3	5	4	9	-9
25	10	7	18	32	16	29	31	-2	-20	-25	-26	-29	-27	-24	-24	-24	-22	-17	-12	-2	21	15	24	15	-1
26	13	29	27	27	13	22	18	-13	-25	-23	-22	-20	-27	-24	-28	-16	-20	-20	-11	21	36	25	12	-2	-0
27	17	23	21	22	32	13	-7	-6	-22	-22		-22	-4	-12	-21	-19	-14	-19	-11	3	0	1	-1	-1	-2
28	-5	0	5	5	8	22	24	-14	-20	-22	-23	-20	-16	-23	-20	-22	-23	-22	-17	-13	-12	-7	0	-1	-9
29	0	4	4	1	6	5	13	-7	-22	-24	-28	-28	-23	-28	-26	-26	-22	-18	-12	-1	6	17	29	23	-6
30	9	18	23	14	5	13	9	-16	-24	-23	-28	-30	-30	-30	-24	-23	-23	-19	-9	16	22	16	21	19	-4
MEAN	4	6	5	6	3	3	2	-13	-22	-24	-26	-25	-25	-24	-24	-23	-22	-20	-14	-2	3	4	3	4	

TOTAL NUMBER OF OBSERVATIONS = 8533 MEAN = -9.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF BAROMETRIC PRESSURE
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	780	780	780	779	779	779	778	777	777	776	776	776	776	776	775	776	775	776	776	776	777	777	777	777	77
2	777	776	776	776	776	776	776	777	777	777	777	777	778	778	778	779	779	779	780	781	782	783	783	783	77
3	783	783	783	783	783	784	784	785	785	785	785	785	785	785	785	785	786	786	786	787	788	789	789	789	78
4	789	789	789	789	789	789	789	790	790	791	791	791	791	791	791	791	791	791	791	791	791	791	791	792	79
5	792	792	792	792	792	792	793	793	794	794	795	795	795	795	794	794	794	794	795	795	795	795	796	796	79
6	796	796	796	796	796	797	797	797	797	797	797	797	796	796	796	795	795	795	795	795	796	796	796	796	79
7	796	796	796	796	796	796	797	797	797	797	797	797	796	796	796	795	795	795	795	795	796	796	796	796	79
8	796	796	796	796	796	796	796	796	796	796	796	795	795	794	793	792	792	792	792	792	792	792	791	791	79
9	791	791	790	790	790	790	790	789	789	790	789	789	788	787	787	786	786	786	786	786	786	786	786	786	78
10	786	786	787	787	787	787	788	788	788	788	787	787	786	786	785	785	785	785	785	785	785	785	786	786	78
11	786	785	785	785	786	786	786	786	787	787	787	786	785	785	785	785	785	786	787	787	788	788	788	789	78
12	789	789	789	789	789	790	790	791	791	792	792	793	792	792	792	792	792	792	791	792	792	792	792	791	79
13	791	791	790	790	789	789	789	789	788	788	787	786	786	786	785	785	785	784	784	784	785	785	784	784	78
14	783	783	783	782	783	782	782	782	782	782	782	782	781	781	781	781	781	781	782	784	785	785	785	786	78
15	785	785	785	785	785	785	785	785	786	787	787	787	787	787	786	786	787	787	788	788	788	789	789	789	78
16	789	789	789	789	789	789	790	791	791	791	791	791	790	790	789	789	789	789	789	789	790	790	790	789	78
17	789	789	789	789	789	789	789	789	789	789	788	788	787	786	786	785	785	785	785	786	786	787	788	788	78
18	788	788	788	787	787	787	787	787	786	786	785	784	783	782	782	781	781	782	784	785	785	785	785	786	78
19	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	78
20	786	786	786	786	786	786	786	787	787	787	787		787	787	786	786	786	786	787	787	788	788	789	789	78
21	790	790	790	791	791	791	792	793	793			793	793	793	792	792	792	792	792	792	793	793	793	793	79
22	794	794	794	794	794	795	795	796	796	796	797	796	796	796	796	795	795	795	795	795	795	796	796	796	79
23	796	796	796	797	797	797	797	798	798	798	798	797	797	797	796	795	795	795	795	796	796	796	797	797	79
24	797	797	798	798	798	798	798	797	798	797	797	796	796	795	794	794	794	794	793	794	794	794	794	794	79
25	794	794	794	794	794	794	794	794	794	793	793	792	792	791	791	790	790	790	790	790	790	790	790	790	79
26	790	790	790	790	790	790	791	791	791	790	790	789	789	789	788	788	788	787	787	787	788	788	788	788	78
27	788	788	788	788	788	789	789	789	790	790		789	790	789	788	788	788	788	788	788	789	789	789	789	78
28	790	790	790	790	790	790	790	791	791	791	791	791	791	791	790	790	791	790	790	790	791	791	791	791	79
29	791	791	791	791	791	791	792	792	792	792	792	792	791	791	790	790	790	790	790	790	790	791	791	791	79
30	790	790	790	790	790	790	791	791	790	790	790	789	789	788	788	787	787	786	786	786	787	787	787	787	78
MEAN	789	789	789	789	789	789	789	790	790	789	789	789	789	788	788	788	788	788	788	788	789	789	789	789	

TOTAL NUMBER OF OBSERVATIONS = 8533 MEAN = 789.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF BI-VANE WIND SPEED AT 200 FEET
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	4	3	5	4	5	4	9	5	3	6	12	11	15	11	7	11	11	13	20	13	4	7	9	8	8
2	4	5	12	10	4	8	12	7	10	9	8	10	6	9	10	9	8	10	11	7	4	3	7	6	8
3	1	4	3	2	5	7	6	5	6	9	13	16	20	18	16	17	14	12	8	3	1	5	6	4	8
4	2	2	4	3	3	1	1	2	0	3	6	11	11	9	10	9	5	5	11	7	6	6	4	2	5
5	2	4	4	2	1	1	2	2	2	8	4	3	4	4	5	5	7	4	0	2	6	8	1	0	3
6	1	3	3	3	2	1	5	4	3	3	3	6	7	8	8	9	7	8	8	10	6	5	6	7	5
7	2	2	3	2	1	2	2	5	3	2	5	9	9	10	7	4	6	7	6	5	4	4	3	4	4
8	2	3	1	0	3	5	6	7	9	13	17	16	15	13	16	16	17	14	10	8	12	13	19	22	11
9	16	12	10	7	13	13	16	15	14	21	25	28	29	26	26	26	22	20	13	13	13	14	6	9	17
10	8	8	5	8	9	13	9	13	19	21	21	20	23	23	19	15	15	14	11	8	2	4	8	8	13
11	5	3	1	1	6	9	3	5	10	12	7	5	14	21	21	21	20	24	17	9	9	5	10	11	10
12	9	12	5	4	6	6	4	5	7	9	8	8	6	4	6	5	3	1	1	0	3	7	6	2	5
13	4	1	2	3	2	2	7	10	6	3	8	14	22	24	19	15	10	6	5	5	10	14	12	3	9
14	9	5	7	5	7	7	8	7	6	13	17	18	19	15	18	16	17	15	23	20	16	11	8	8	12
15	4	4	7	7	9	8	9	9	9	8	8	7	6	6	6	9	9	9	7	5	6	8	3	3	7
16	4	5	6	4	1	1	2	2	5	1	1	5	7	9	8	8	6	5	4	5	1	1	1	2	4
17	0	3	2	1	1	0	0	0	2	3	4	4	6	7	5	8	6	10	5	7	11	10	10	8	5
18	6	9	5	6	3	1	2	1	2	2	5	11	19	17	20	17	18	21	22	16	15	17	15	16	11
19	13	11	9	7	8	7	7	9	7	8	13	13	13	12	10	7	5	3	0	0	5	3	2	0	7
20	0	0	2	1	6	5	7	5	6	8	9		13	11	12	13	15	14	11	8	7	6	1	2	7
21	1	0	1	4	3	1	0	1	2			8	6	5											3
22																									
23																									
24																									
25																									
26																									
27																									
28																									
29																									
30																									
MEAN	5	5	5	4	5	5	6	6	6	8	10	11	13	13	12	12	11	11	10	8	7	7	7	6	

TOTAL NUMBER OF OBSERVATIONS = 5880 MEAN = 8.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF HORIZONTAL BI-VANE WIND DIRECTION AT 200 FEET
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	253	275	289	164	67	92	117	125	141	224	217	240	223	190	210	210	242	194	184	167	173	170	161	164	18
2	143	161	164	159	180	151	194	161	177	197	256	314	288	271	319	297	266	298	332	318	312	294	323	177	24
3	240	311	319	322	299	327	327	327	321	317	307	319	291	353	238	152	292	152	124	31	215	94	146	196	25
4	245	242	221	196	207	218	126	75	71	143	327	314	337	340	302	226	52	243	229	119	102	83	264	201	20
5	197	246	237	257	314	104	101	132	166	184	46	282	186	131	171	306	111	208	163	88	120	152	151	150	17
6	246	129	136	188	249	159	141	143	136	157	158	159	222	206	257	225	180	211	219	223	188	97	125	122	17
7	172	119	210	300	186	159	118	104	96	251	208	234	237	235	201	160	234	248	235	166	198	113	164	141	18
8	161	172	164	176	156	161	153	142	152	191	207	212	217	194	202	216	213	217	217	222	205	191	188	184	18
9	167	143	126	131	157	167	146	139	200	200	193	204	203	199	207	199	206	208	194	190	182	178	178	173	17
10	168	155	174	164	181	197	204	203	199	216	210	216	214	216	229	228	233	251	277	277	235	254	305	287	22
11	284	201	246	197	246	179	246	247	203	218	100	128	206	273	308	311	310	275	231	199	210	224	263	259	23
12	271	241	245	266	273	272	296	324	330	208	179	333	299	304	328	288	237	196	220	161	264	260	266	275	26
13	237	294	332	227	63	132	207	109	162	234	264	236	232	236	226	244	253	270	311	165	180	183	184	197	21
14	133	154	168	178	158	157	154	134	99	171	205	211	197	230	234	231	245	256	316	321	327	333	326	304	21
15	231	295	299	302	316	316	330	316	323	328	320	305	274	311	330	338	331	333	326	316	320	323	293	279	31
16	285	295	342	318	184	165	67	186	304	254	259	266	319	319	333	337	285	256	208	44	39	169	147	162	22
17	182	151	213	266	250	167	140	92	113	294	309	249	146	331	247	232	183	157	133	134	218	117	38	33	18
18	233	237	318	286	212	233	225	267	158	230	308	224	215	216	223	236	267	342	333	328	332	335	338	333	26
19	329	326	329	326	325	320	313	312	288	314	320	325	323	322	330	324	316	106	124	96	118	272	306	289	28
20	176	121	298	303	304	324	326	307	314	331	341		265	207	236	126	235	151	323	84	91	114	196	307	23
21	230	158	313	80	98	204	216	156	315			46	222	263	218	244	160	115	172	193	178	163	177	201	18
22	151	115	125	185	203	198	211	38	183	239	270	281	209	344	234	307	180	229	5	22	82	115	114	116	17
23	104	119	219	56	105	232	282	225	323	326	320	253	204	190	246	255	161	61	72	70	65	124	219	168	18
24	252	140	170	298	223	212	200	224	339	269	328	286	229	134	316	84	211	112	43	40	166	254	263	242	20
25	191	136	194	265	158	101	98	170	270	330	299	178	198	304	283	317	312	312	262	196	225	219	106	121	21
26	174	177	200	143	172	184	175	165	225	239	292	220	188	193	175	225	217	221	237	225	216	247	129	236	20
27	224	135	216	83	72	67	230	146	145	239		220	206	149	175	168	158	151	148	127	119	153	54	117	15
28	113	136	310	221	149	139	242	210	169	259	194	194	194	212	204	206	212	182	169	201	161	141	176	197	19
29	152	92	129	144	159	196	94	95	72	169	277	297	322	344	292	267	256	276	195	212	158	150	176	172	19
30	171	136	140	139	151	135	120	113	150	218	230	211	180	171	193	212	213	221	224	214	219	233	199	195	18
MEAN	203	191	226	211	194	189	192	179	206	239	247	241	235	245	248	238	226	215	207	172	187	191	199	200	

TOTAL NUMBER OF OBSERVATIONS = 8540 MEAN = 212.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

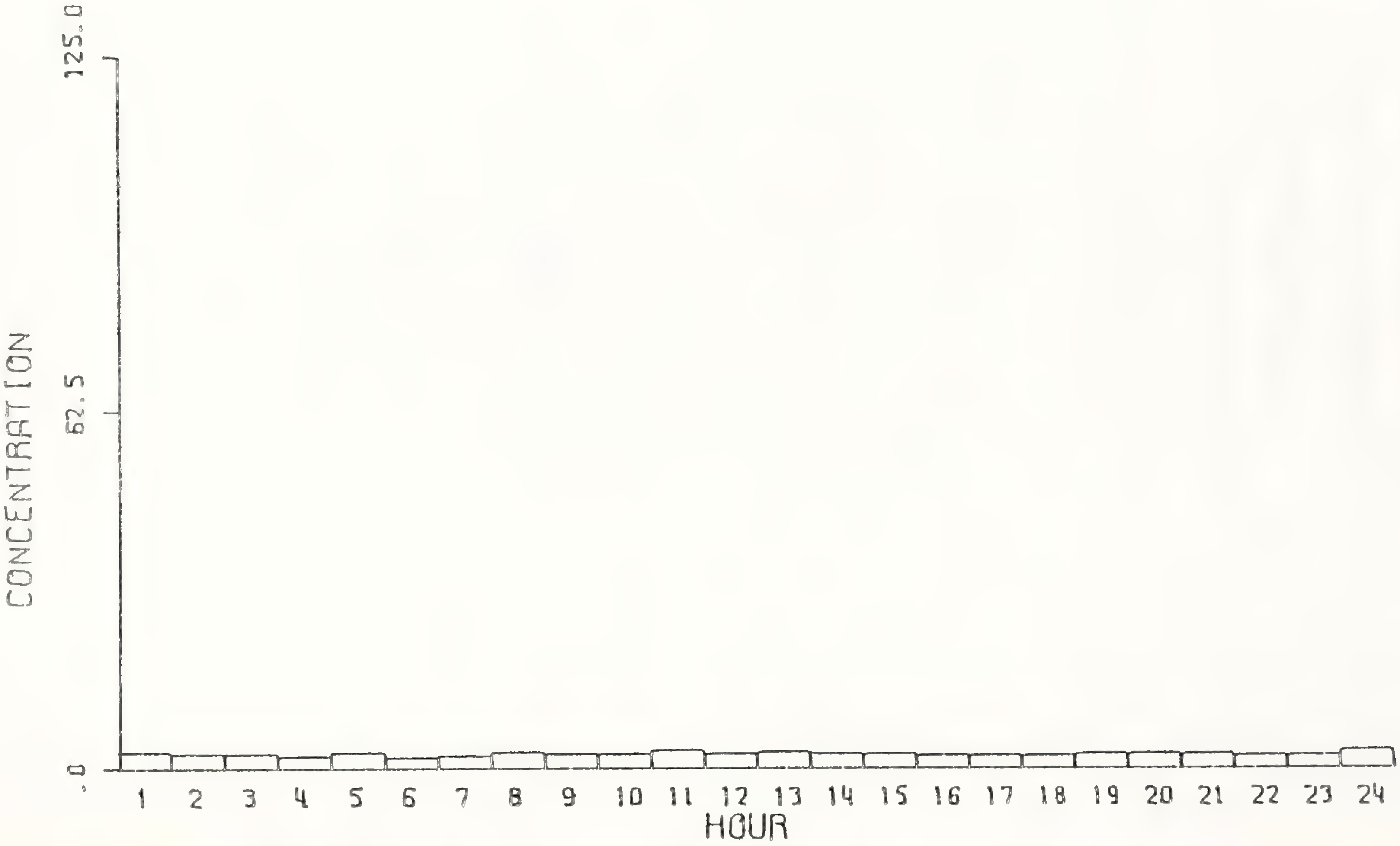
DIURNAL VARIATION OF VERTICAL BI-VANE WIND DIRECTION AT 200 FEET
TRAILER NO. - 23 PERIOD(4/ 1/77 TO 4/30/77)

HOUR

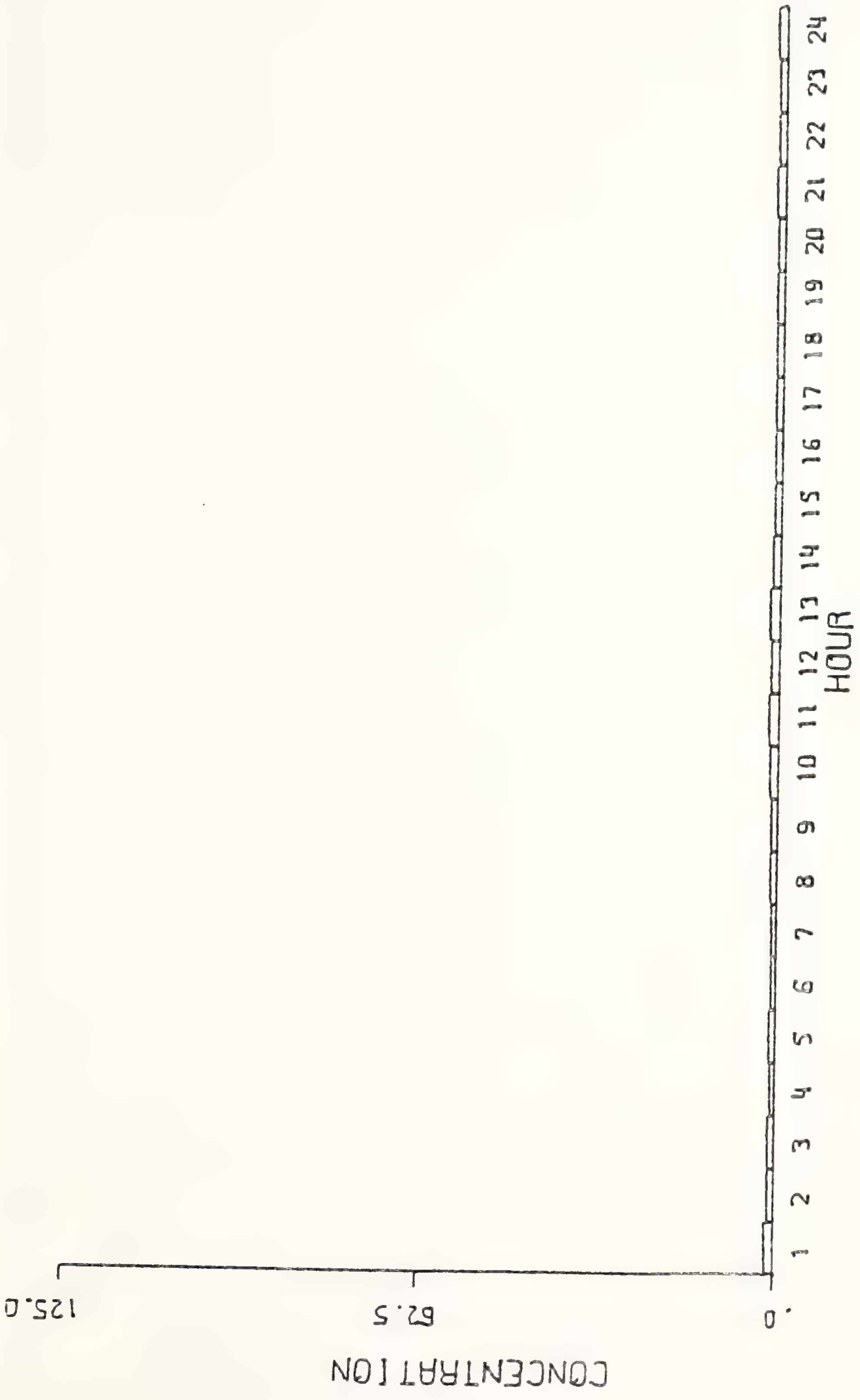
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	2	1	0	0	-4	-7	-8	-7	-6	-4	-7	-8	-9	-8	-2	-7	-5	-8	-9	-9	-4	-7	-8	-9	-6
2	-9	-10	-9	-10	-9	-12	-8	-8	-7	-6	-2	-7	-7	-4	-7	-6	-5	-6	-7	-7	-11	-12	-10	-15	-9
3	-37	-24	-31	-39	-29	-23	-27	-32	-25	-16	-11	-7	-7	-8	-7	-8	-8	-8	-10	-2	0	-11	-12	-10	-17
4	-6	-3	-7	-4	-3	0	-2	-3	0	2	-5	-7	-8	-6	-3	-6	-2	-4	-9	-10	-10	-9	-8	0	-6
5	-1	-6	-6	-1	0	0	0	0	-1	-5	-5	0	-1	-3	-5	-7	-4	-3	4	0	-7	-8	0	6	-3
6	3	-6	-6	-4	-2	0	-7	-10	0	-3	1	-5	-6	-8	-5	-9	-7	-9	-12	-15	-5	-11	-14	-14	-7
7	-3	-3	-5	0	1	0	-3	-12	0	3	-3	-4	-4	-3	-2	0	-2	0	-6	-5	-4	-3	-1	-3	-3
8	-2	-4	0	8	-2	-6	-9	-8	-9	-9	-11	-9	-8	-6	-8	-7	-7	-9	-5	1	-5	0	-1	-3	-6
9	-5	-5	-2	-2	-8	-9	-9	-5	-3	-5	-3	0	1	1	0	0	-5	-8	-6	-5	-2	0	-2	-1	-4
10	0	4	-1	-2	-3	0	0	1	0	-4	-8	-5	-7	-7	-5	-3	-5	-4	-2	-2	7	0	-5	-6	-3
11	-3	1	2	2	-1	0	-3	-4	-5	-8	-5	-5	-4	-5	-4	-6	-6	-6	-8	-7	-5	-4	-5	-6	-5
12	-5	-13	-20	-21	-32	-34	-13	-12	-24	-9	-7	-5	-4	-3	-5	-2	-6	2	0	4	-1	-5	-6	0	-10
13	-4	-10	-20	-26	-28	33	-8	-16	-21	-9	-2	-6	-9	-6	-8	-8	-6	-2	-4	-3	-7	-8	-7	-1	-9
14	-8	-5	-8	-6	-9	-10	-6	0	-4	-8	-10	-10	-7	-8	-8	-6	-7	-8	-7	-7	-7	-7	-5	-7	-8
15	0	-2	-8	-7	-7	-7	-6	-6	-6	-6	-6	-8	-9	-17	-20	-10	-9	-9	-11	-11	-10	-10	-12	-12	-9
16	-10	-8	-8	-9	-13	-15	-9	-4	-3	1	7	-3	-3	-4	-2	-5	-1	-5	-4	-2	5	1	2	-1	-4
17	5	-3	0	2	0	9	2	11	4	2	5	0	-5	-3	-4	-7	-1	-8	-2	-6	-6	-6	-7	-6	-1
18	-4	-5	-4	-6	-4	0	-2	-1	1	0	-4	-4	-9	-11	-11	-10	-8	-6	-7	-7	-7	-7	-6	-7	-6
19	-5	-6	-5	-6	-5	-5	-7	-7	-6	-6	-7	-7	-7	-7	-7	-7	-14	-12	48	46	-25	-27	-10	50	-3
20	50	50	-2	-4	-22	-24	-17	-23	-20	-9	-6		-5	-7	-7	-6	-7	-12	-12	-6	-13	-12	2	0	-6
21	2	6	2	-6	-4	1	2	0	-10			0	-5	-3	0	-5	-4	-7	-7	-10	-5	0	-2	2	-3
22	11	-4	0	-1	-1	-5	0	0	2	2	-4	-2	-1	-6	-1	-2	-2	-3	0	34	30	19	10	27	3
23	12	39	14	5	24	17	8	1	-5	-3	2	-3	0	-4	-4	-1	-4	-2	-2	0	6	7	14	28	5
24	27	31	34	20	24	20	34	8	2	-2	-5	-3	-2	-5	-1	0	-3	-3	0	0	8	18	0	-3	7
25	4	0	14	23	23	0	0	-3	-2	-4	-5	-6	0	-1	-3	-4	-4	7	0	0	-4	-1	5	-1	1
26	-2	-2	0	1	2	1	0	0	-5	1	-3	0	0	-7	-2	-3	-2	-7	0	-1	-7	4	-6	-2	-2
27	-12	0	-2	5	7	1	-1	-5	-6	-8		-11	-3	-8	-7	-7	-11	-10	-11	-8	-8	-7	-7	-8	-6
28	-4	0	1	0	-9	-4	-4	-6	-5	0	2	-6	-9	-9	-8	-6	-3	-7	-9	-8	-4	-5	-1	-1	-5
29	-4	0	7	-3	-4	-3	2	-1	-4	2	-4	-5	-6	-6	-3	-7	-7	-6	-9	-7	-7	-6	-7	-7	-5
30	0	-5	-8	-6	-9	-5	-7	-3	-2	-7	-11	-7	-10	-10	-11	-14	-10	-13	-17	1	8	-5	-11	-10	-8
MEAN	-1	-0	-3	-4	-5	-3	-4	-6	-6	-5	-5	-6	-6	-7	-6	-7	-7	-7	-5	-2	-4	-5	-5	-1	

TOTAL NUMBER OF OBSERVATIONS = 8531 MEAN = -5.

: INDICATES CALIBRATION DURING THE HOUR

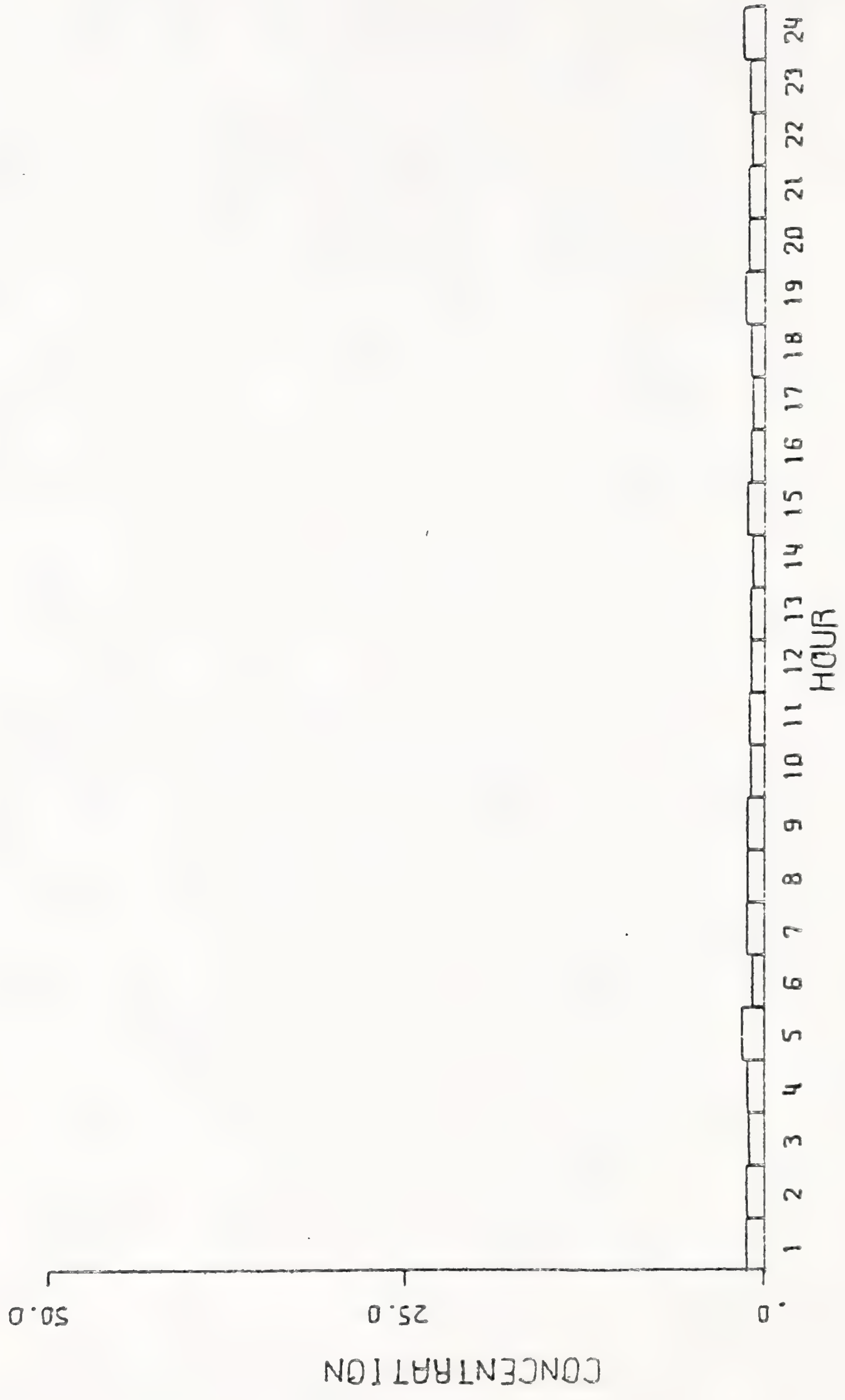


DIURNAL VARIATION OF NITROGEN OXIDES(UG/M**3)
SITE - 23



DIURNAL VARIATION OF NITRIC OXIDE (UG/M**3)

SITE - 23



DIURNAL VARIATION OF NITROGEN DIOXIDE (UG/M**3)
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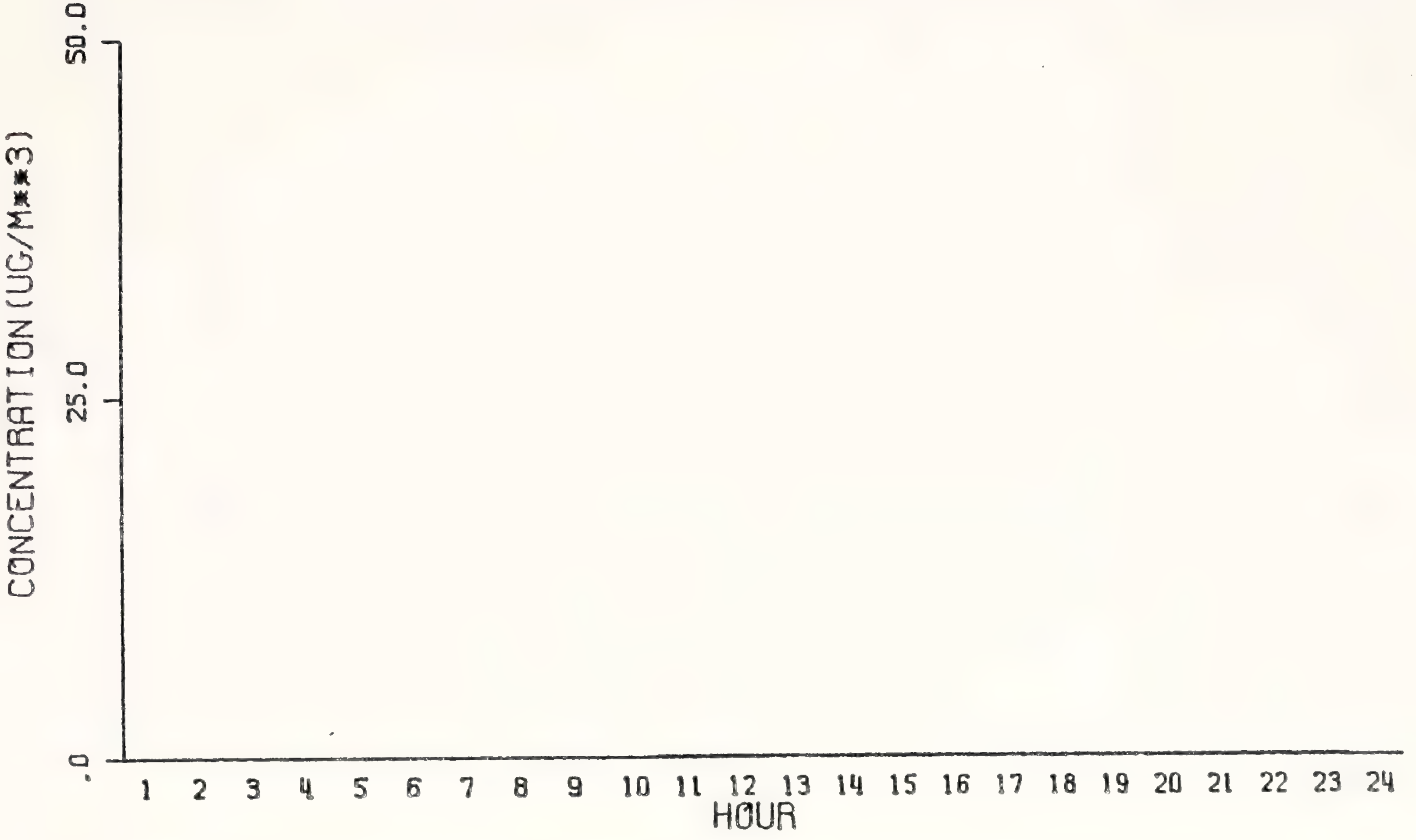
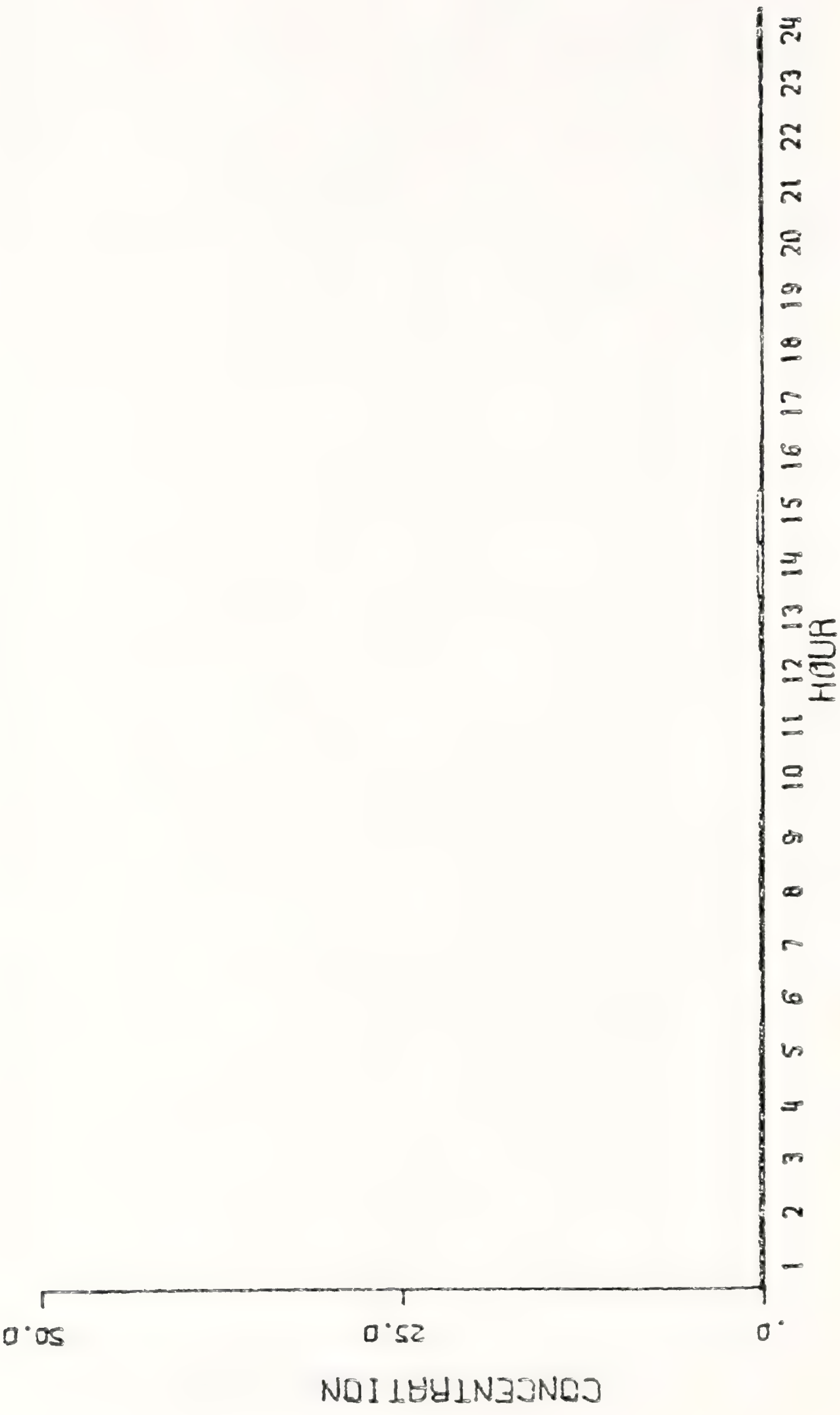
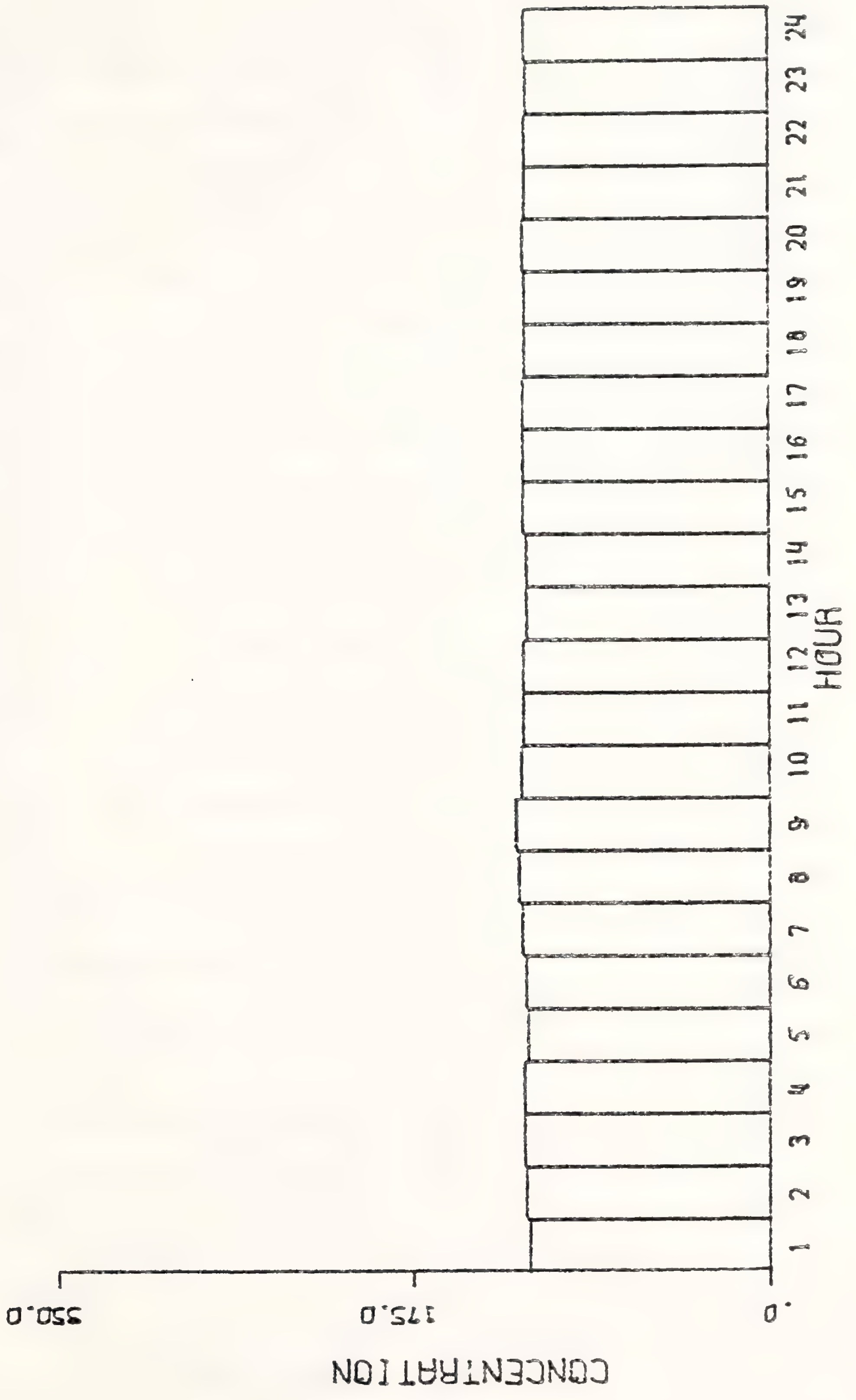


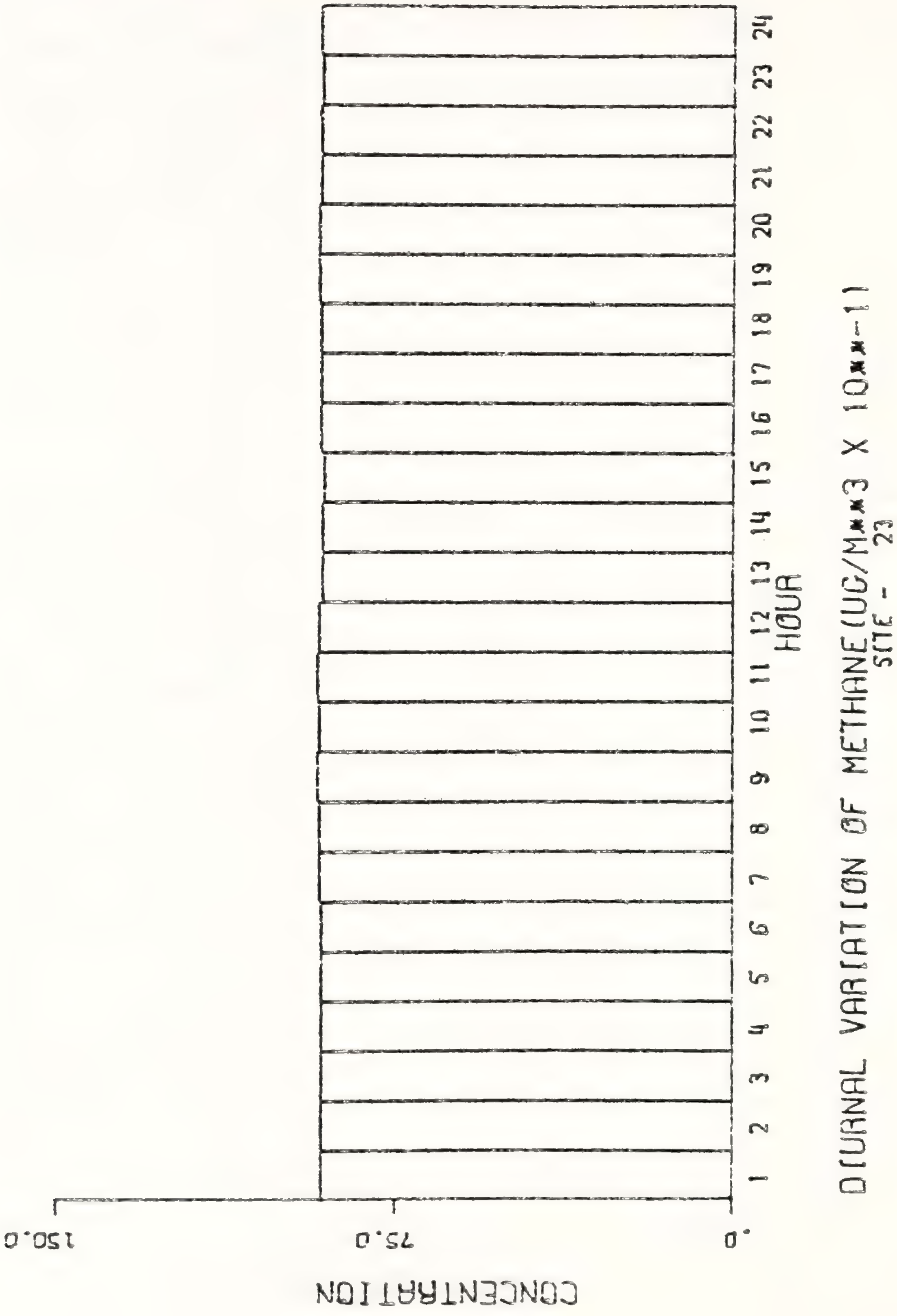
DIURNAL VARIATION OF SULFUR DIOXIDE (UG/M**3)
SITE - 23

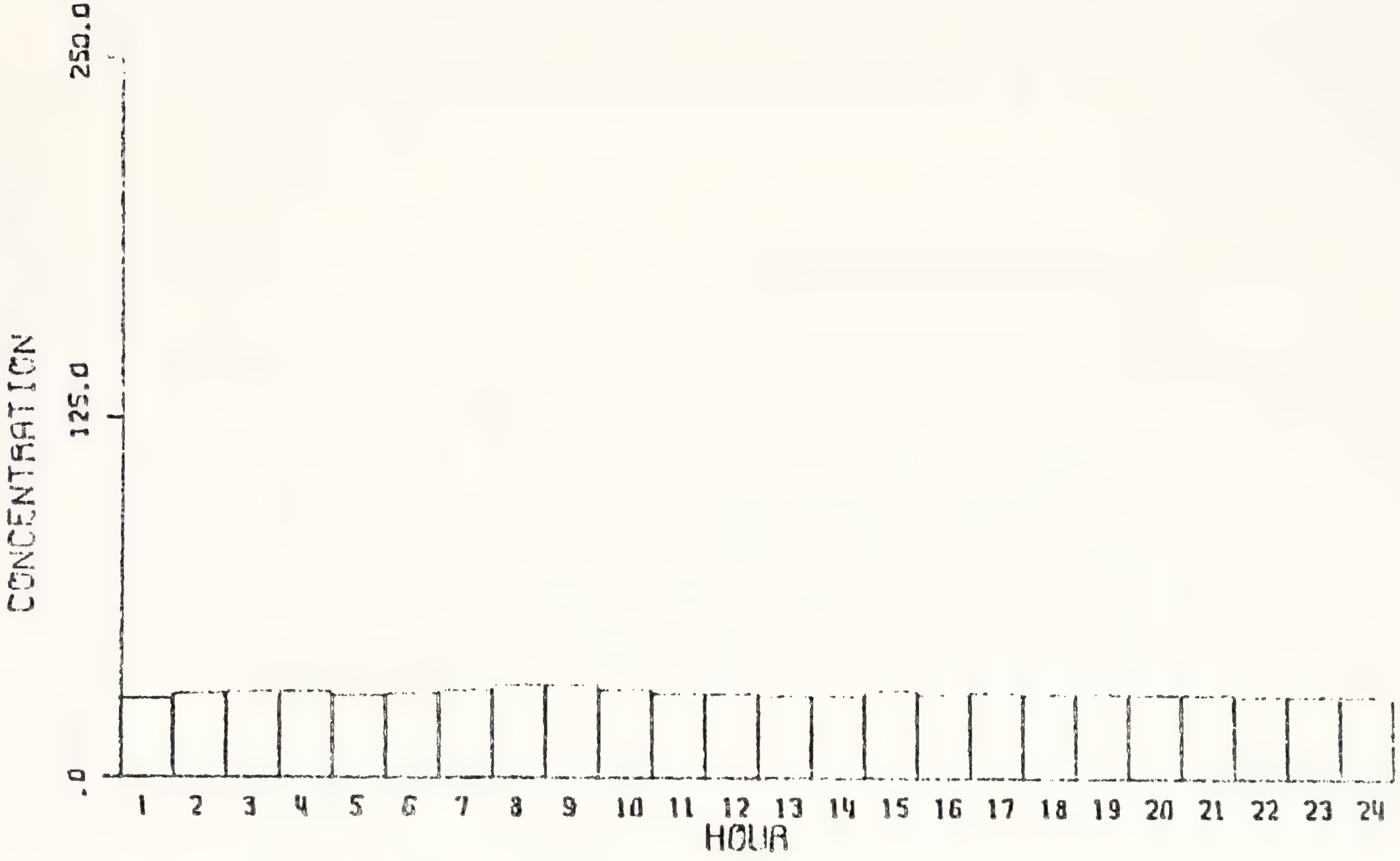


DIURNAL VARIATION OF HYDROGEN SULFIDE (UG/M**3)
SITE - 23

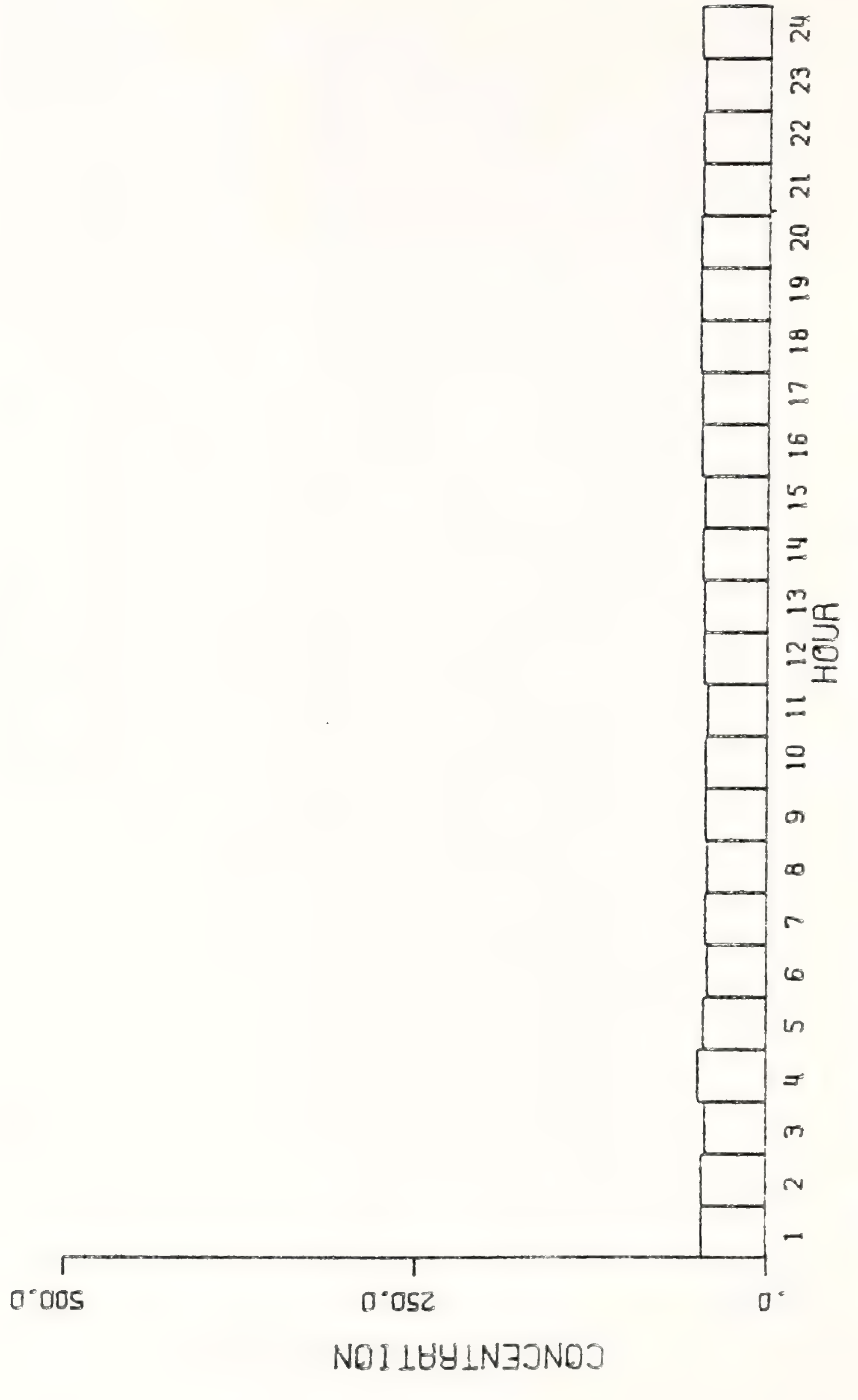


DIURNAL VARIATION OF TOTAL HYDROCARBONS(UG/M**3 X 10**-1)
SITE - 23

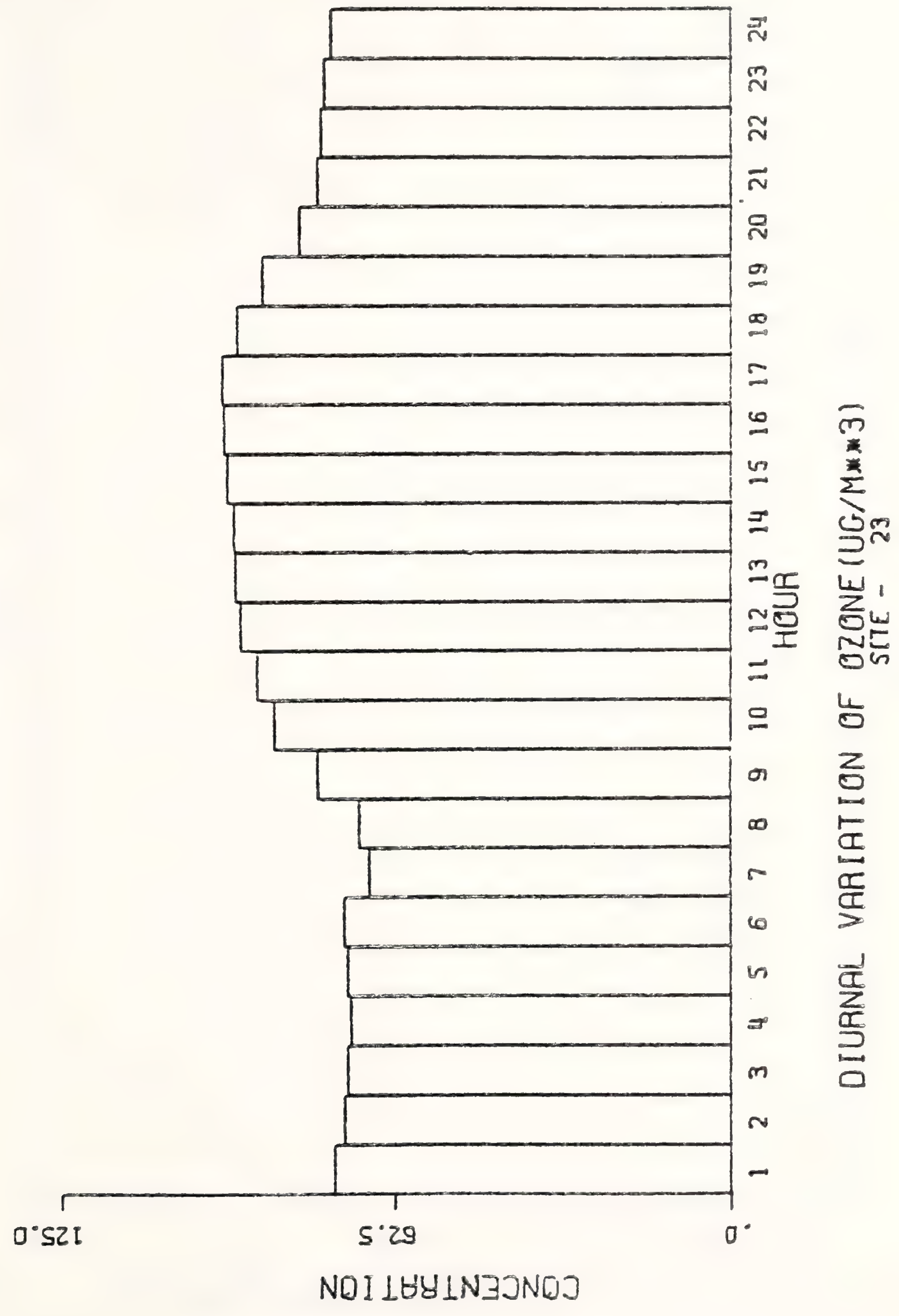

DIURNAL VARIATION OF METHANE (UG/M**3 X 10**-1)
SITE - 23
HOUR
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
CONCENTRATION
0.
75.0
150.0



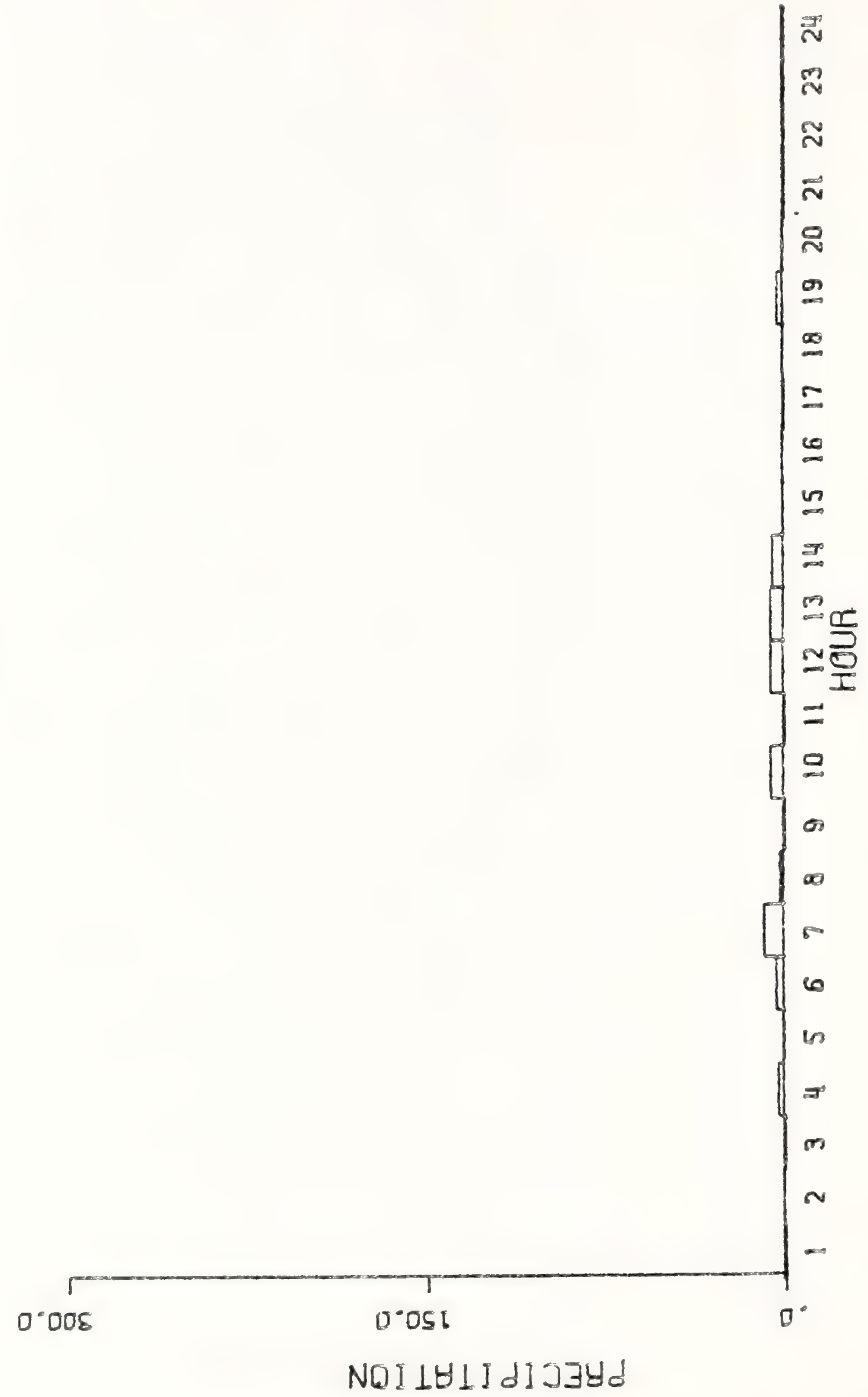
DIURNAL VARIATION OF NON-METHANE HYDROCARBONS(UG/M**3 X 10**-1)
SITE - 23



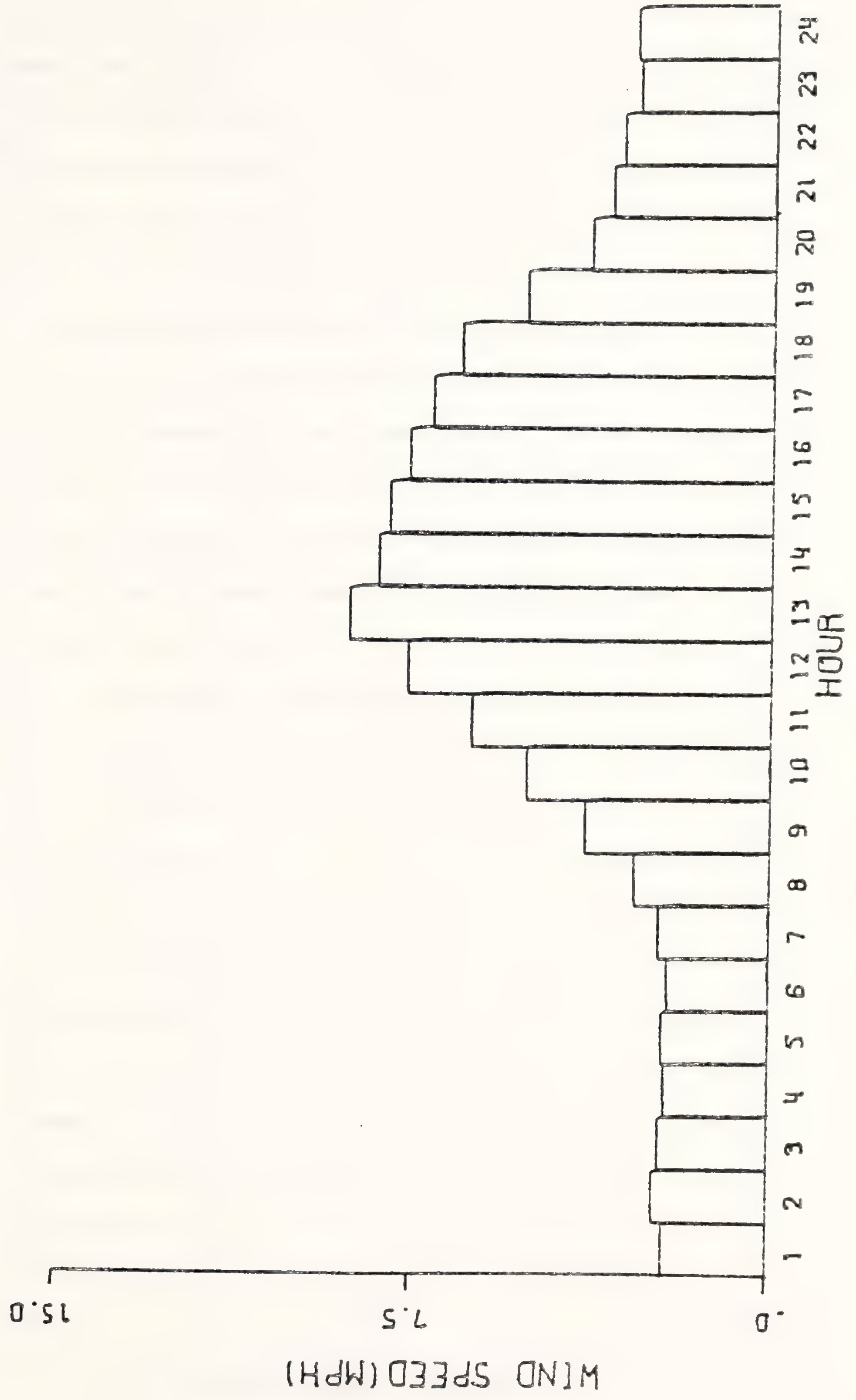
DIURNAL VARIATION OF CARBON MONOXIDE (UG/M**3 X 10**-1)
SITE - 23



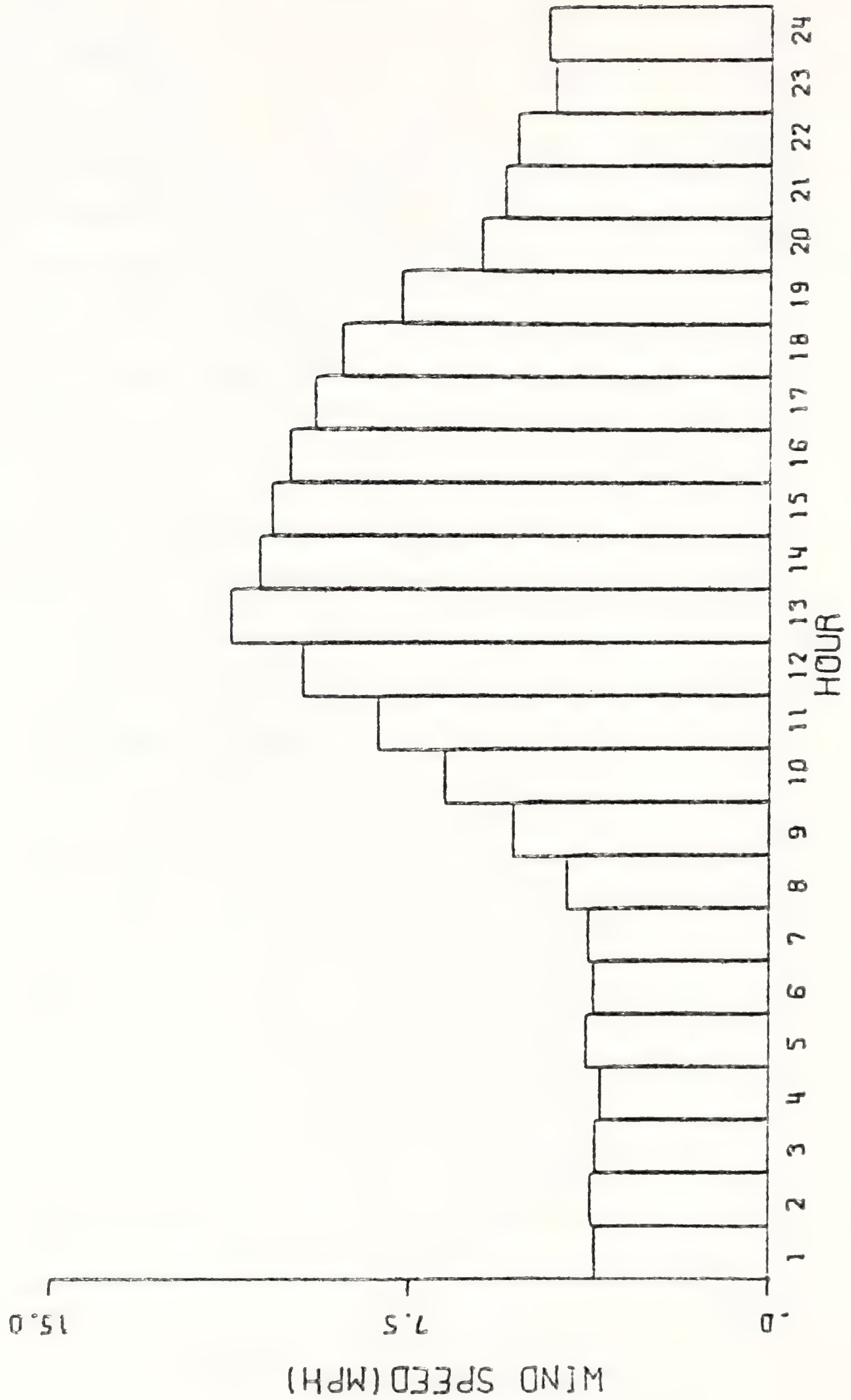
DIURNAL VARIATION OF OZONE(UG/M**3)
SITE - 23



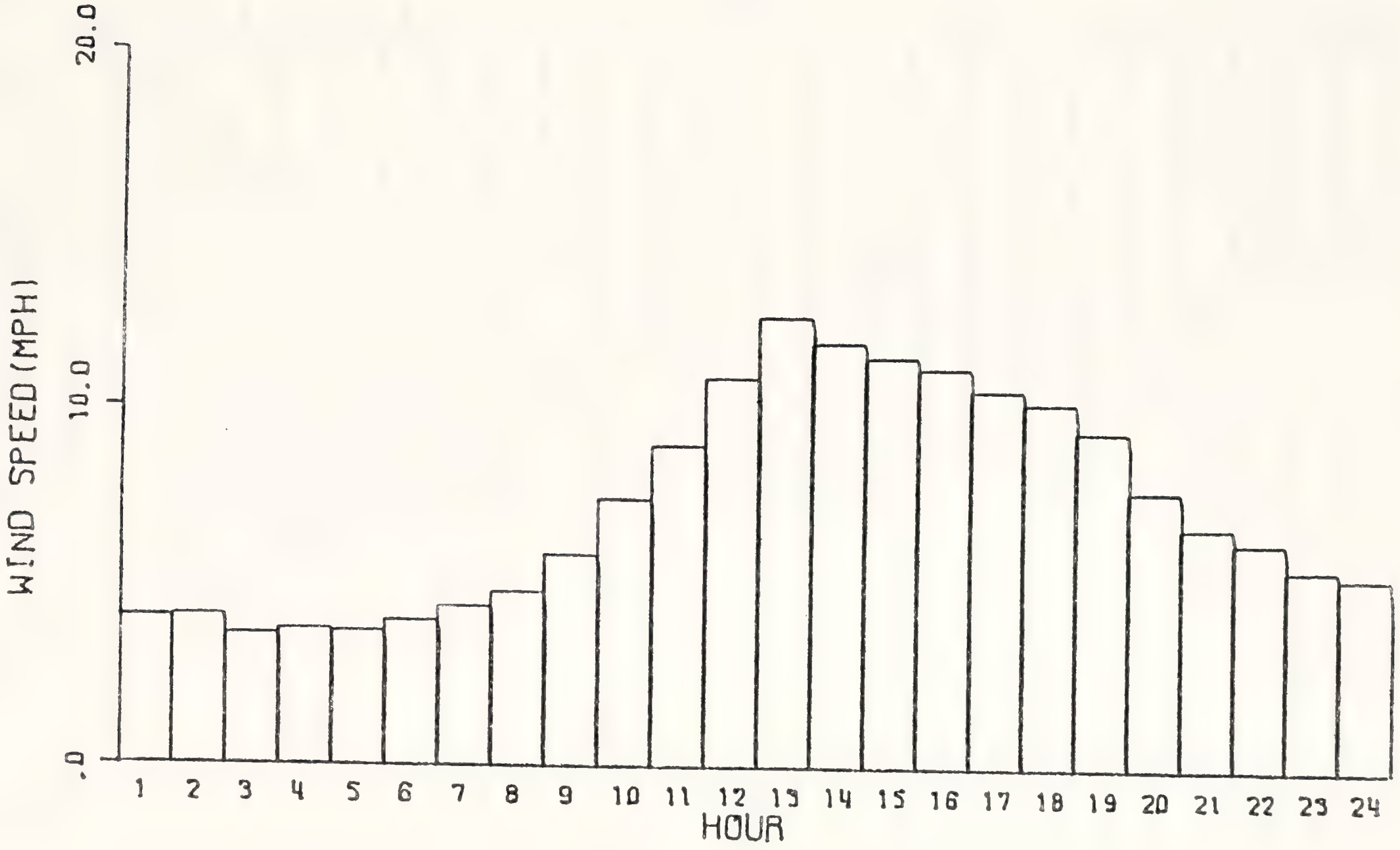
HOURLY TOTAL PRECIPITATION (HUNDREDTHS OF INCHES)
SITE - 23



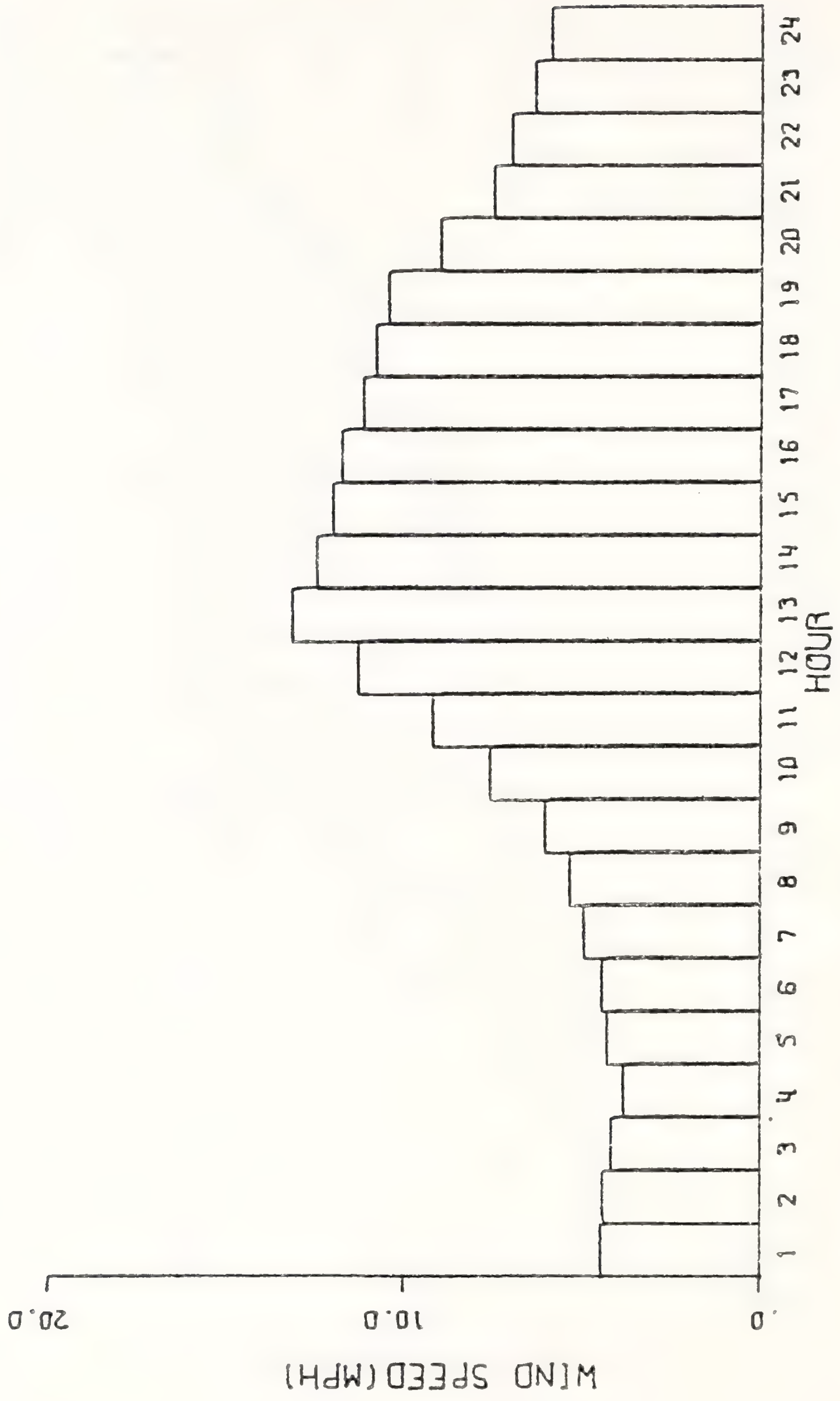
DIURNAL VARIATION OF WIND SPEED AT 8 FEET(MPH)
SITE - 23



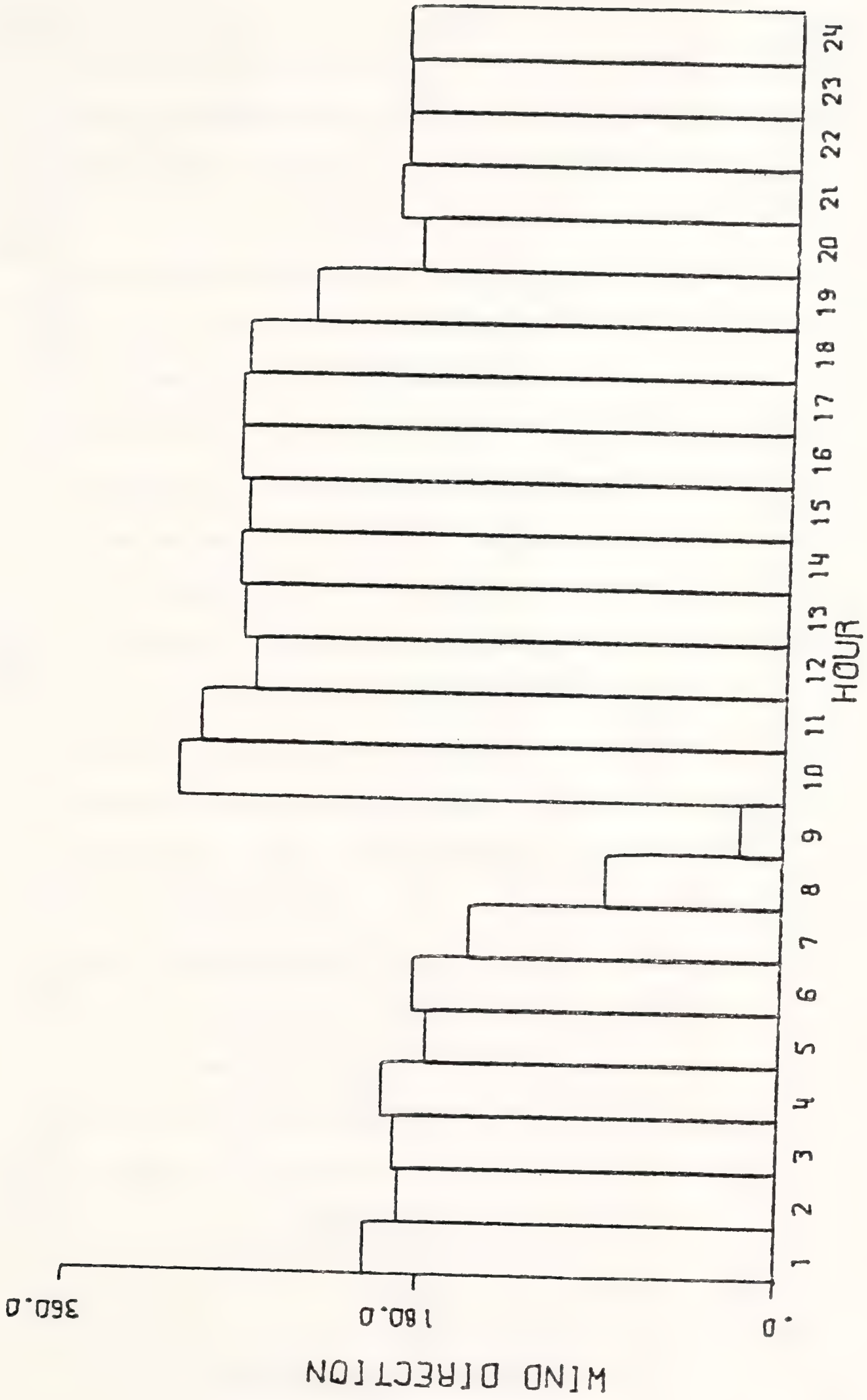
DIURNAL VARIATION OF WIND SPEED AT 30 FEET (MPH)
SITE - 23



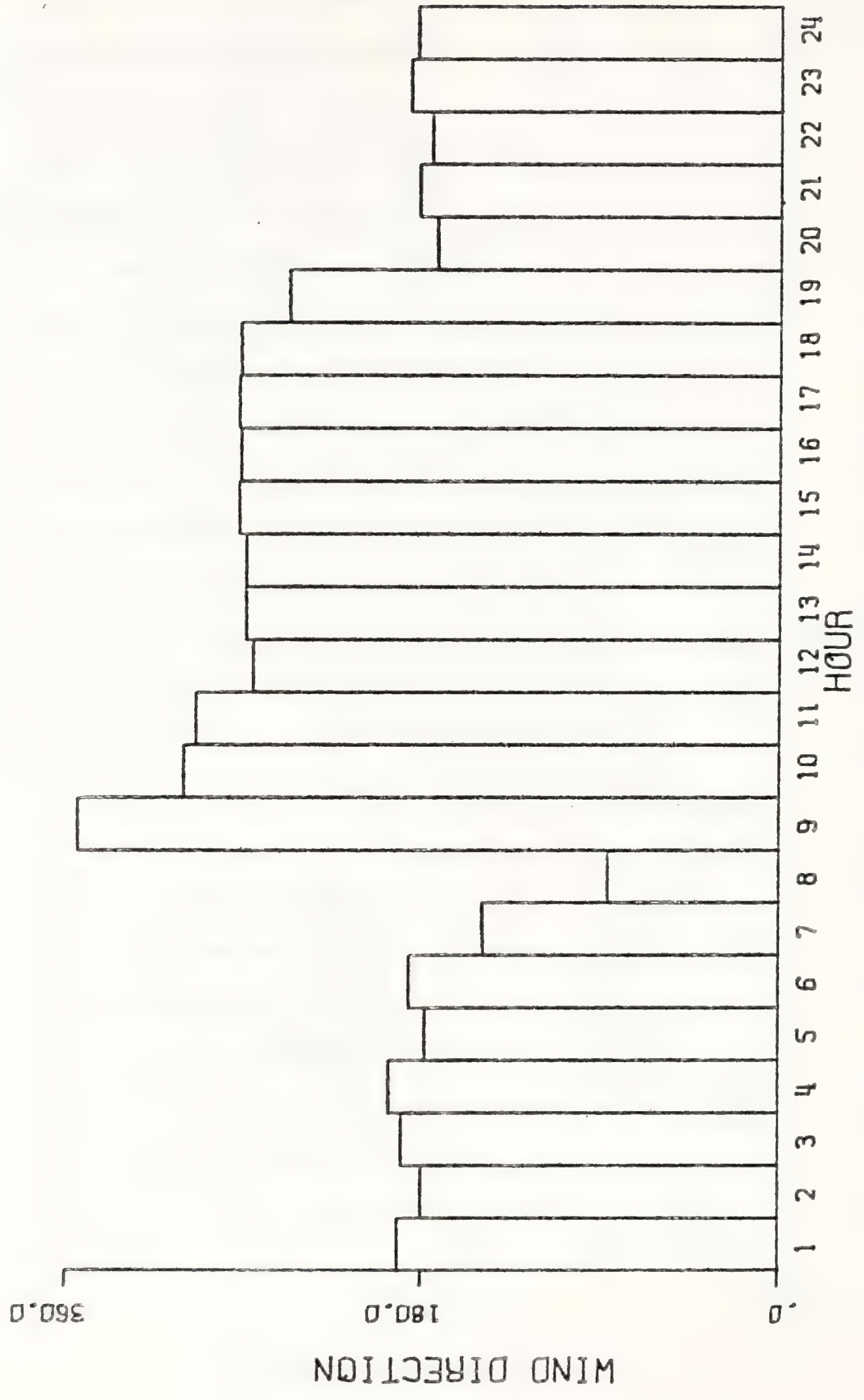
DIURNAL VARIATION OF WIND SPEED AT 100 FEET (MPH)
SITE - 23



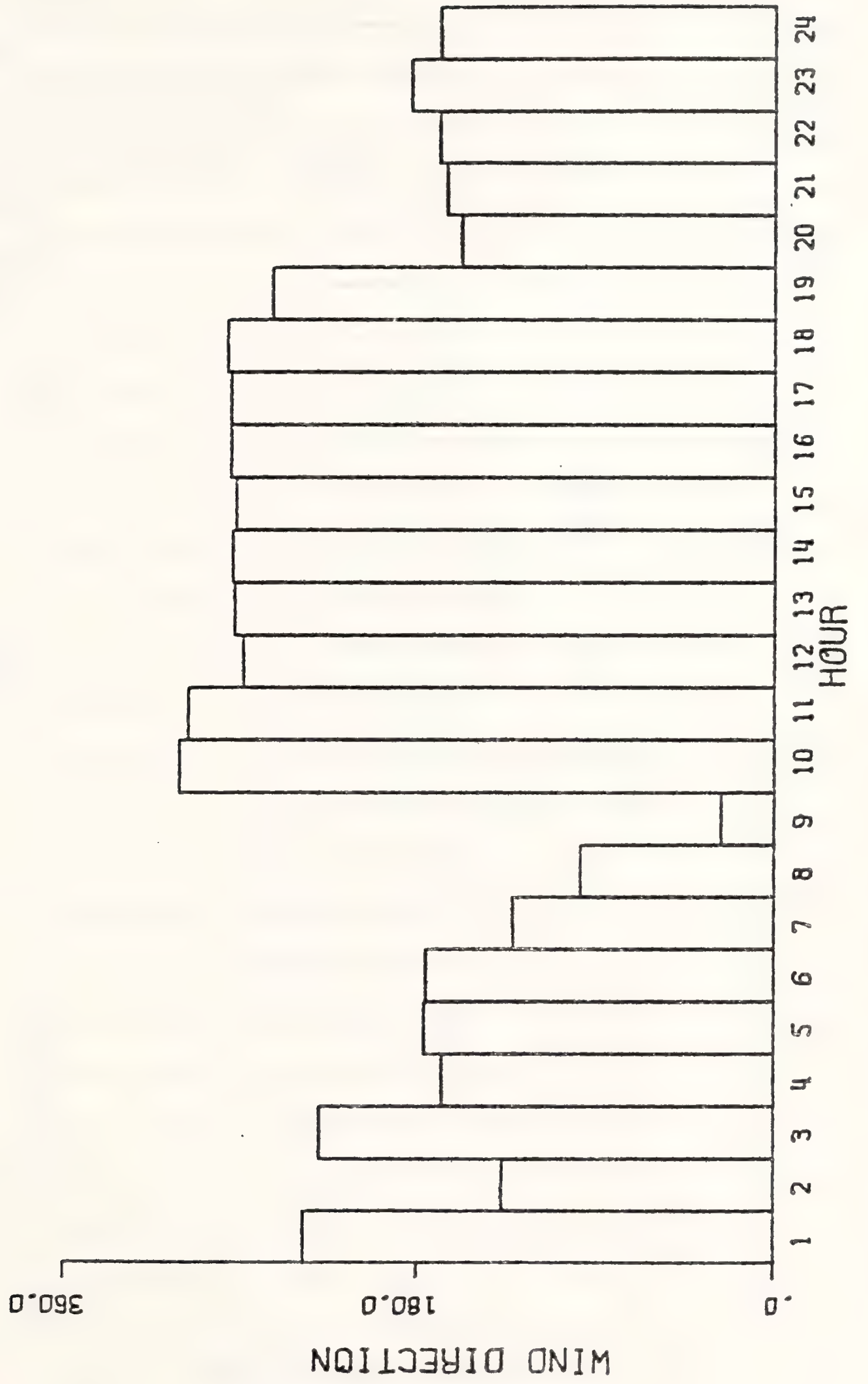
DIURNAL VARIATION OF WIND SPEED AT 200 FEET (MPH)
SITE - 23



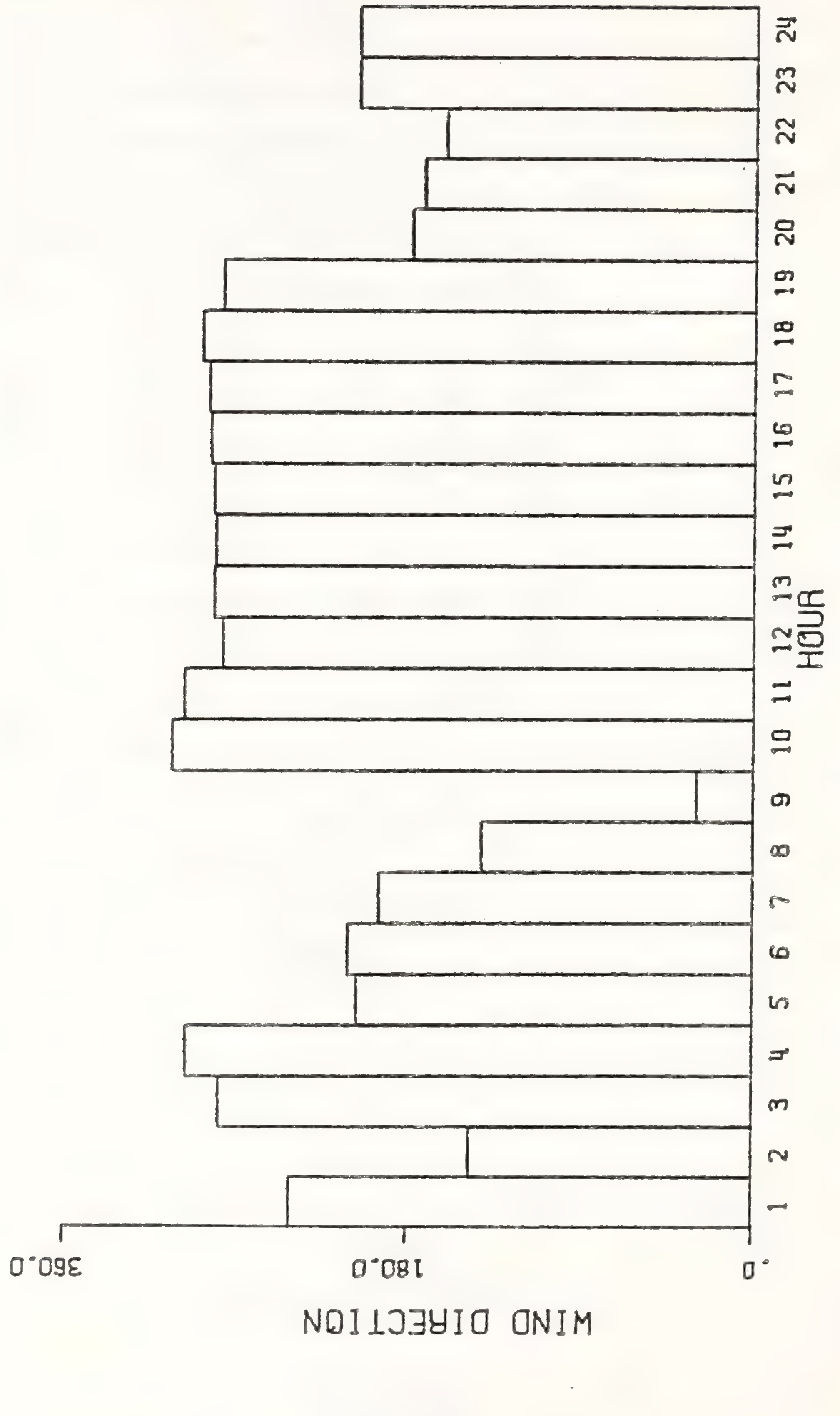
DIURNAL VARIATION OF WIND DIRECTION AT 8 FEET
SITE - 23



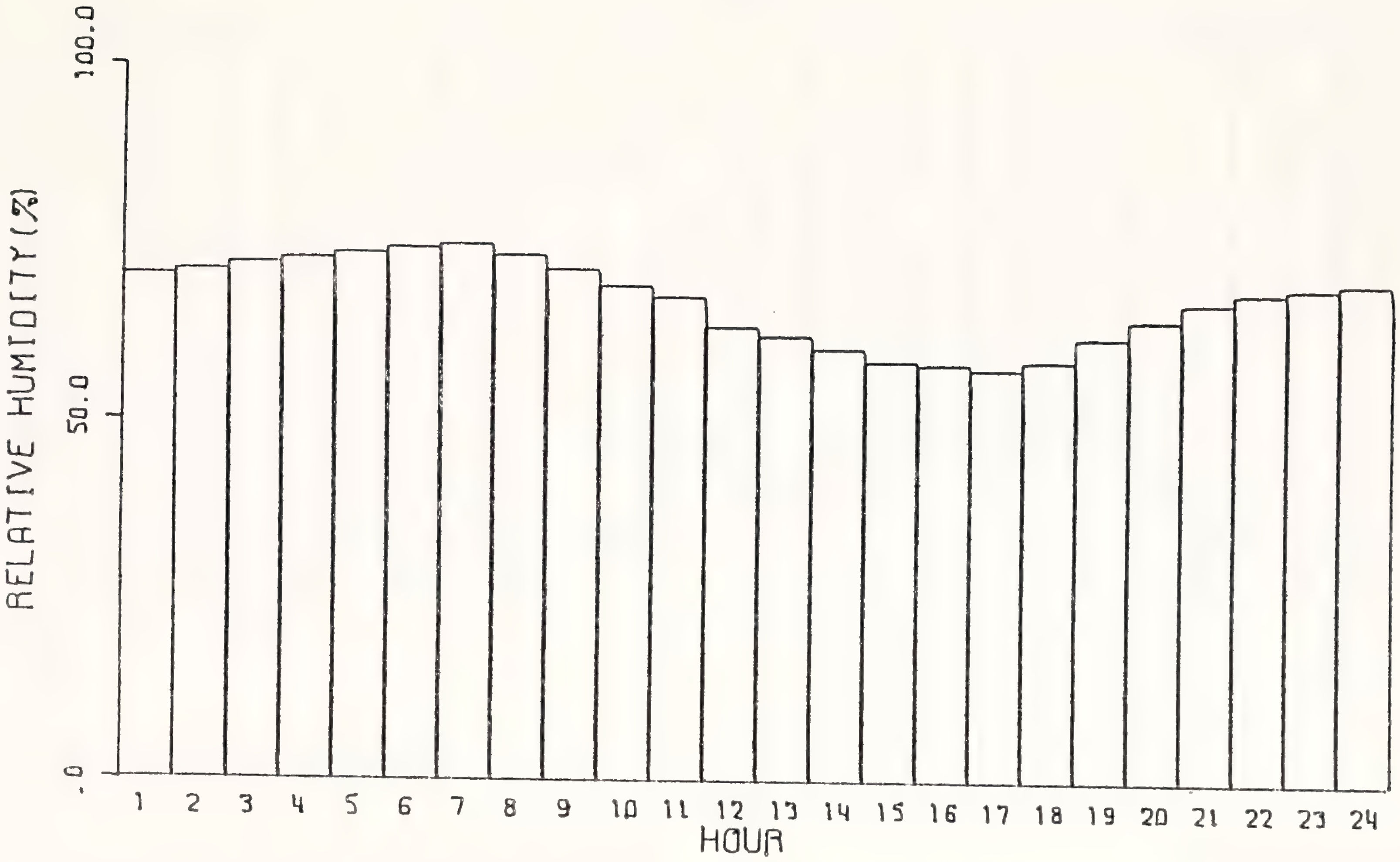
DIURNAL VARIATION OF WIND DIRECTION AT 30 FEET
SITE - 23



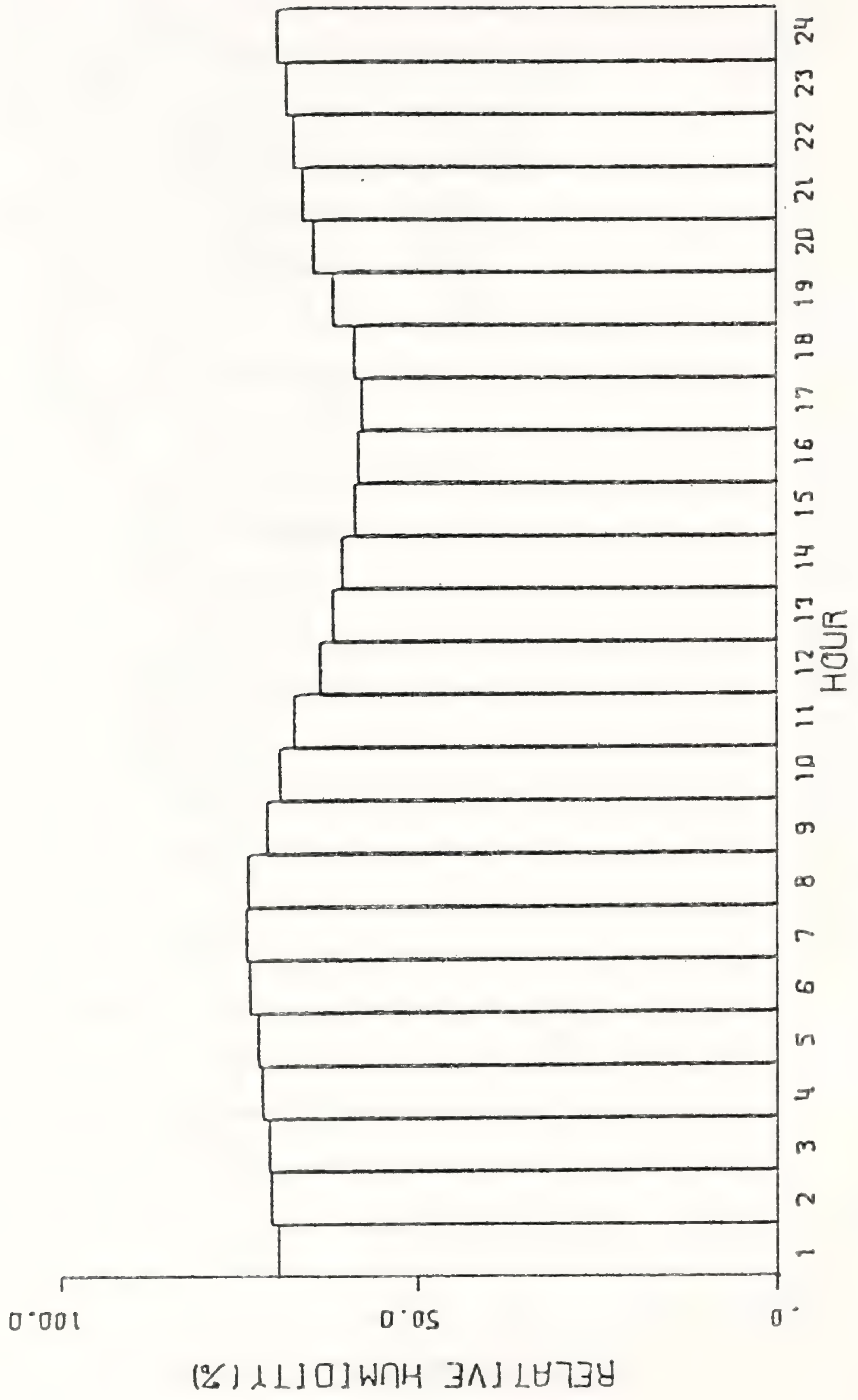
DIURNAL VARIATION OF WIND DIRECTION AT 100 FEET
SITE - 23



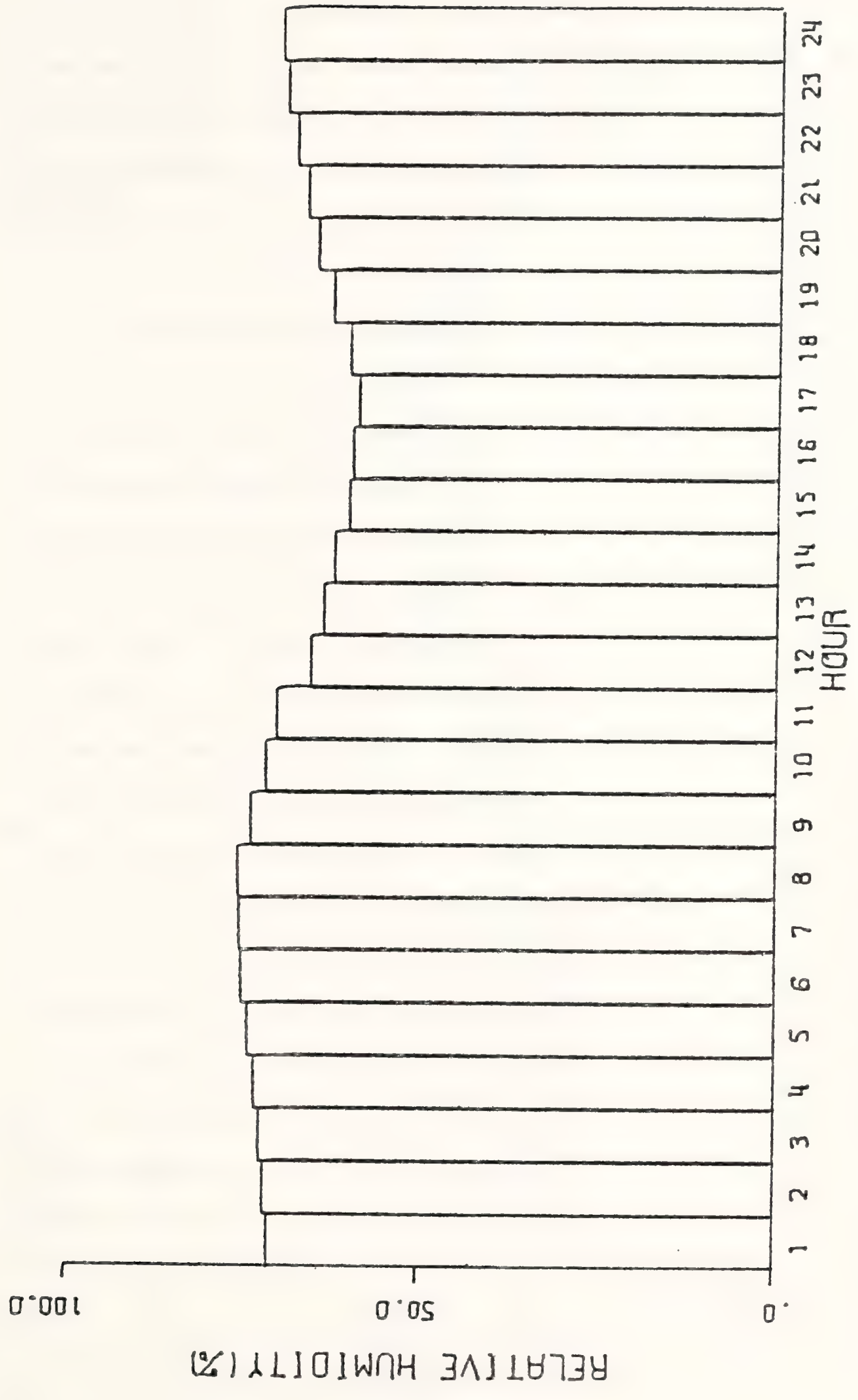
DIURNAL VARIATION OF WIND DIRECTION AT 200 FEET
SITE - 23



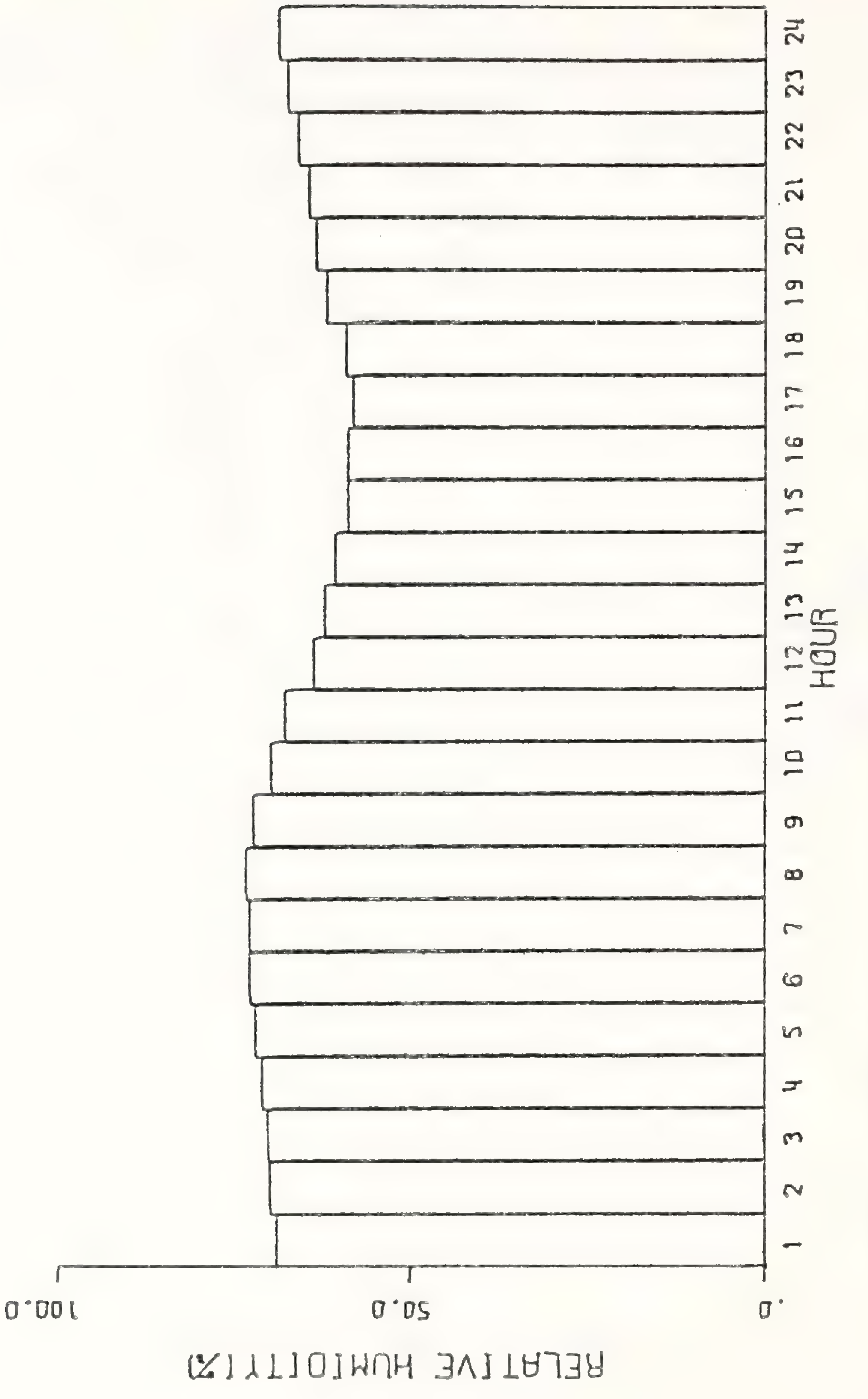
DIURNAL VARIATION OF RELATIVE HUMIDITY AT 8 FEET
SITE - 23



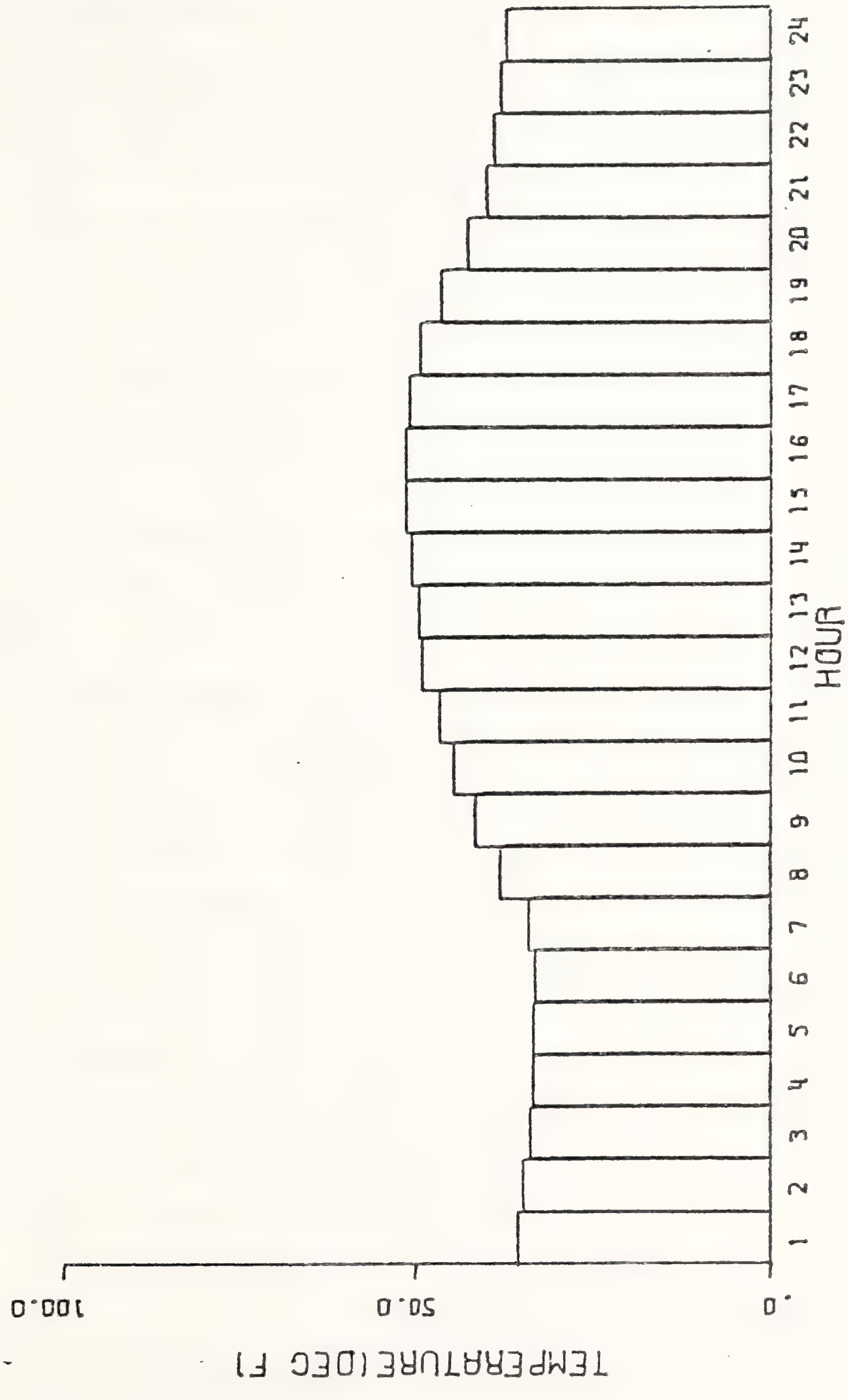
DIURNAL VARIATION OF RELATIVE HUMIDITY AT 30 FEET
SITE - 23



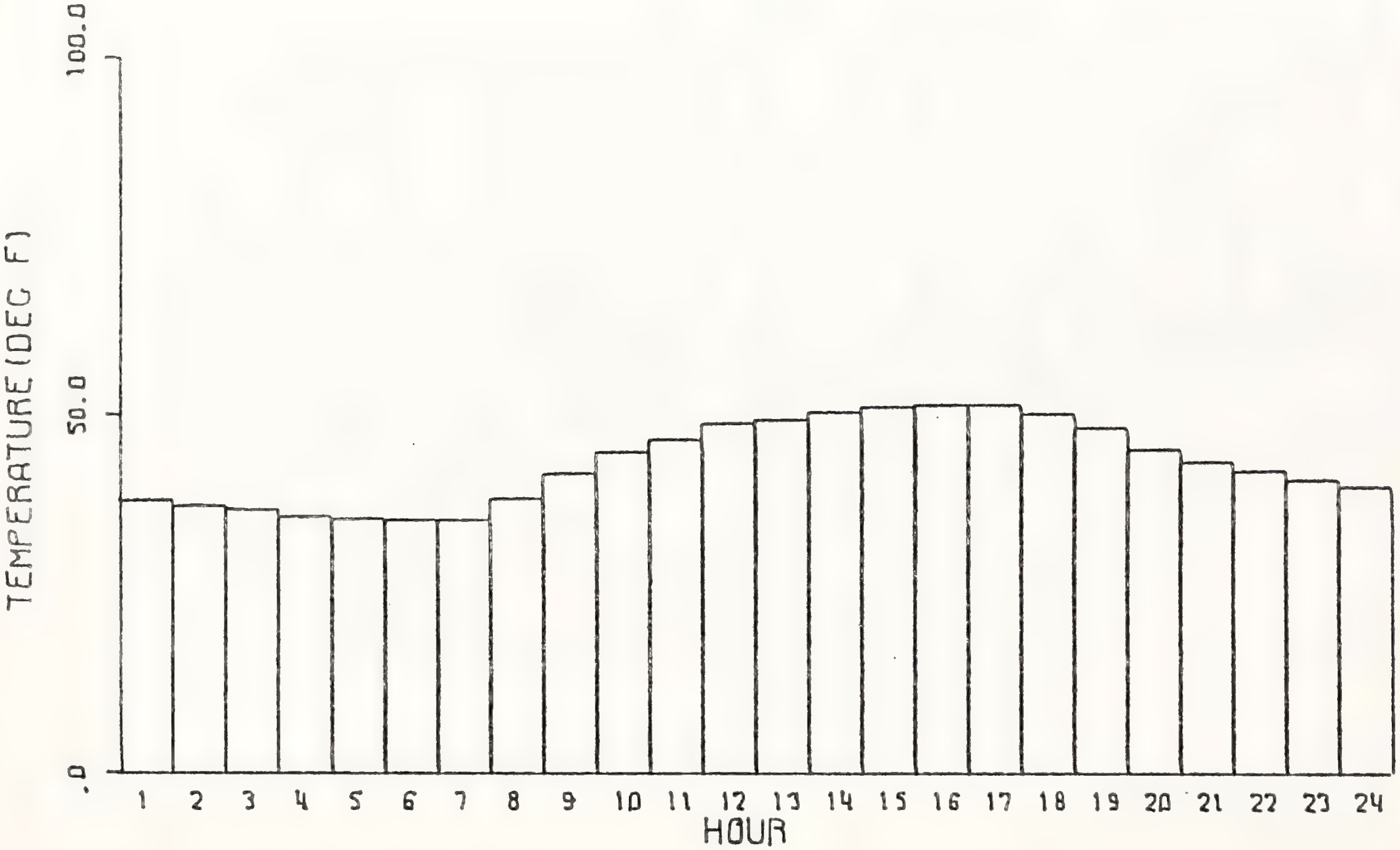
DIURNAL VARIATION OF RELATIVE HUMIDITY AT 100 FEET
SITE - 23



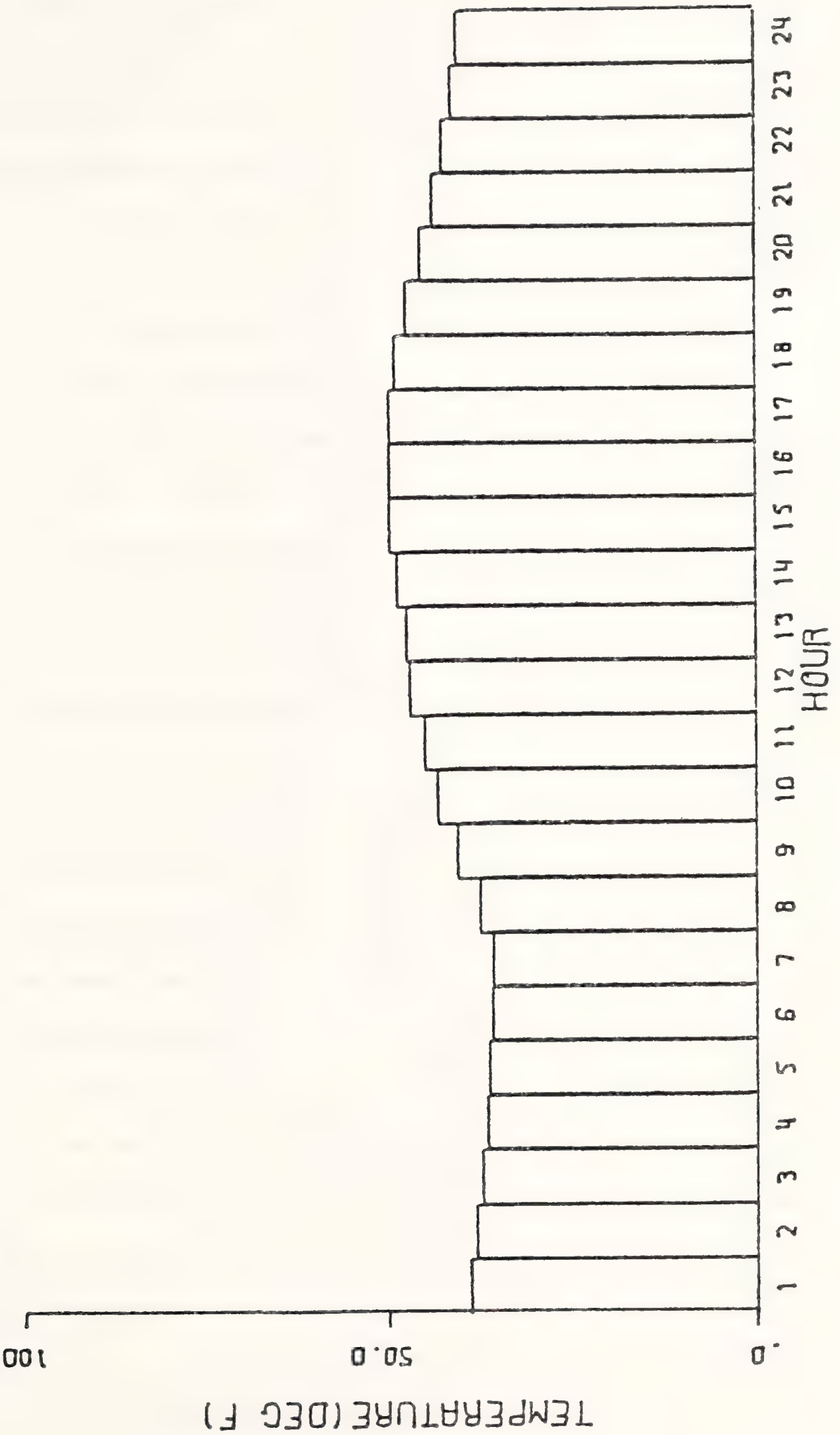
DIURNAL VARAITON OF RELATIVE HUMIDITY AT 200 FEET
SITE - 23



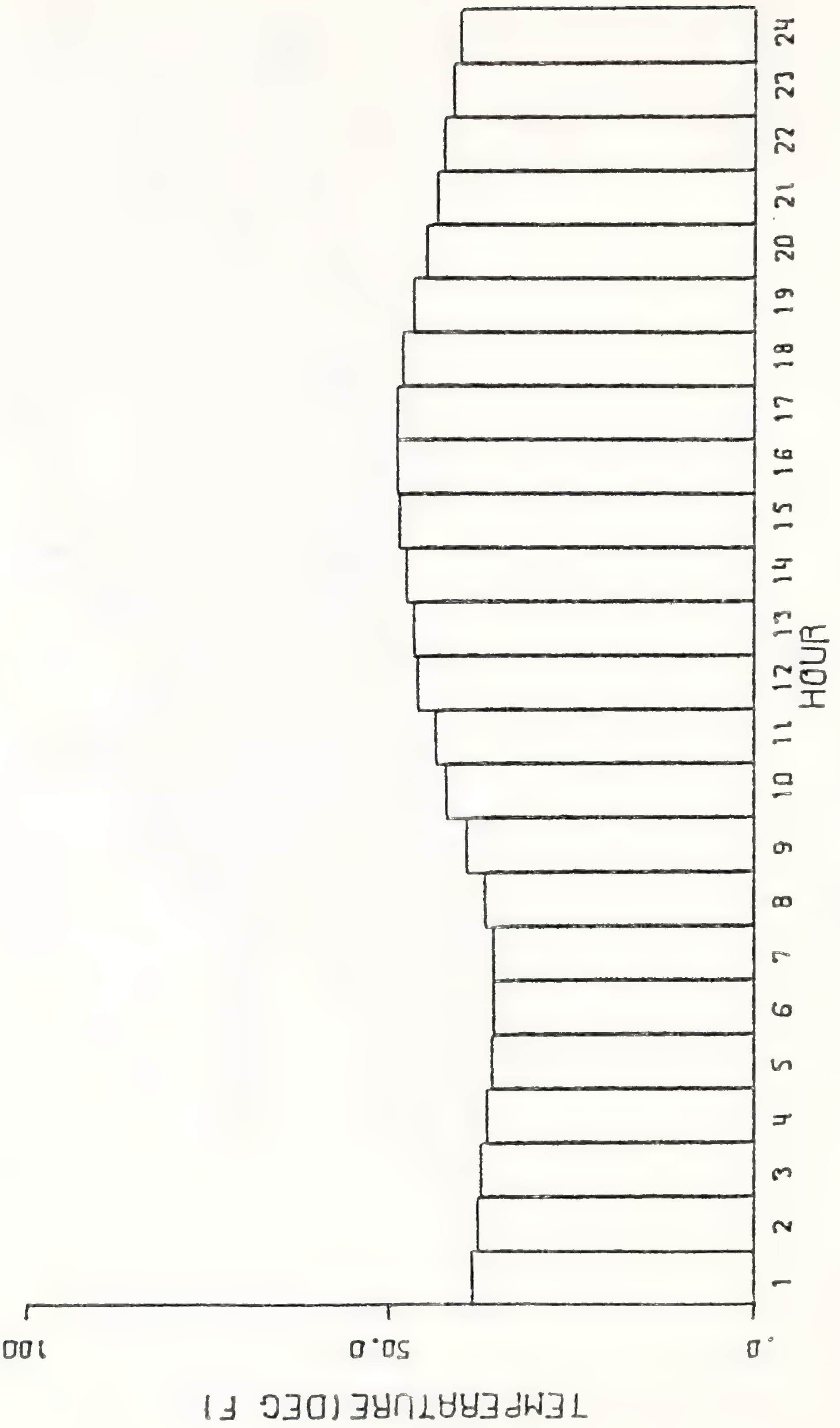
DIURNAL VARIATION OF TEMPERATURE AT 8 FEET(DEG F)
SITE - 23



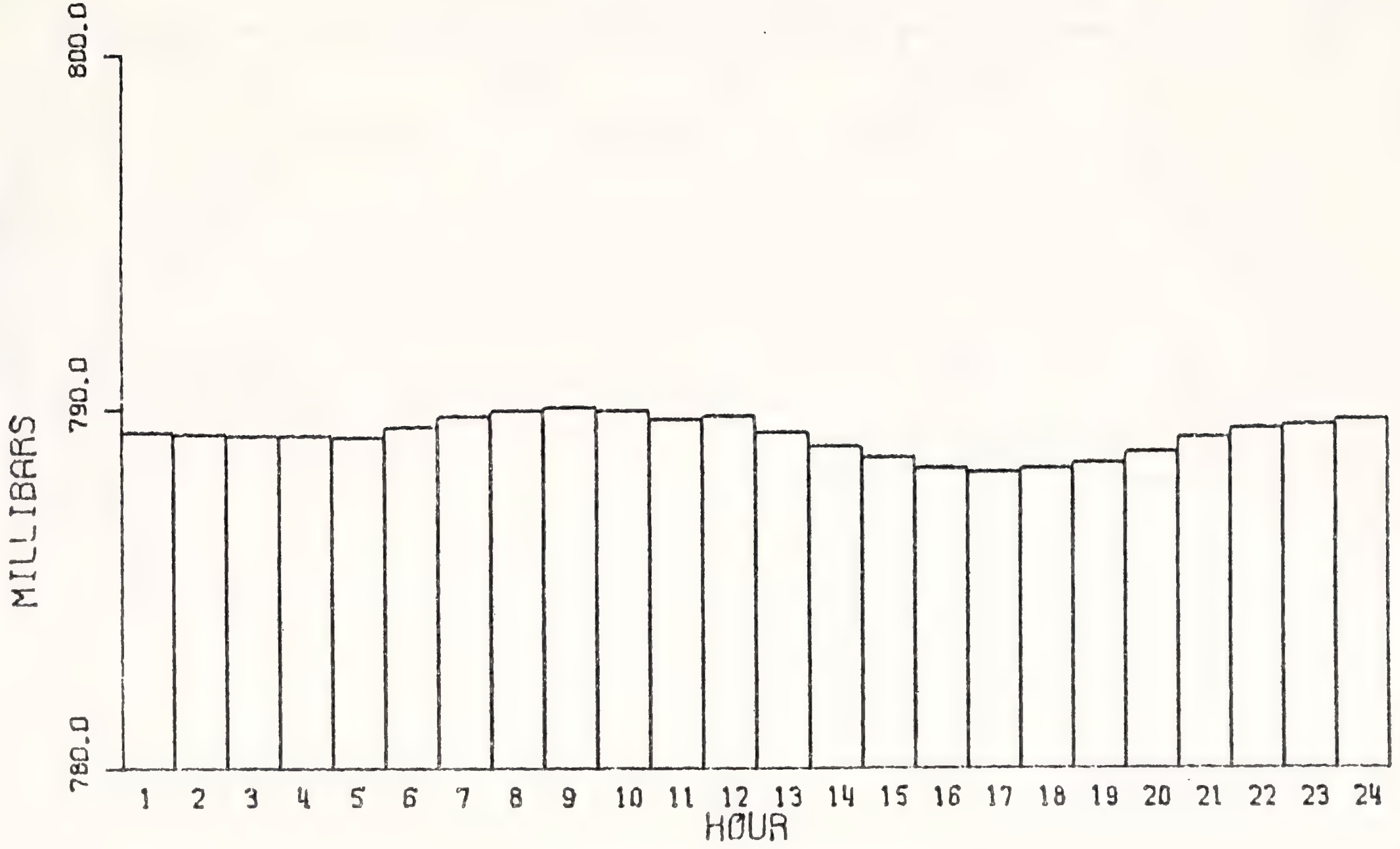
DIURNAL VARIATION OF TEMPERATURE AT 30 FEET (DEG F)
SITE - 23



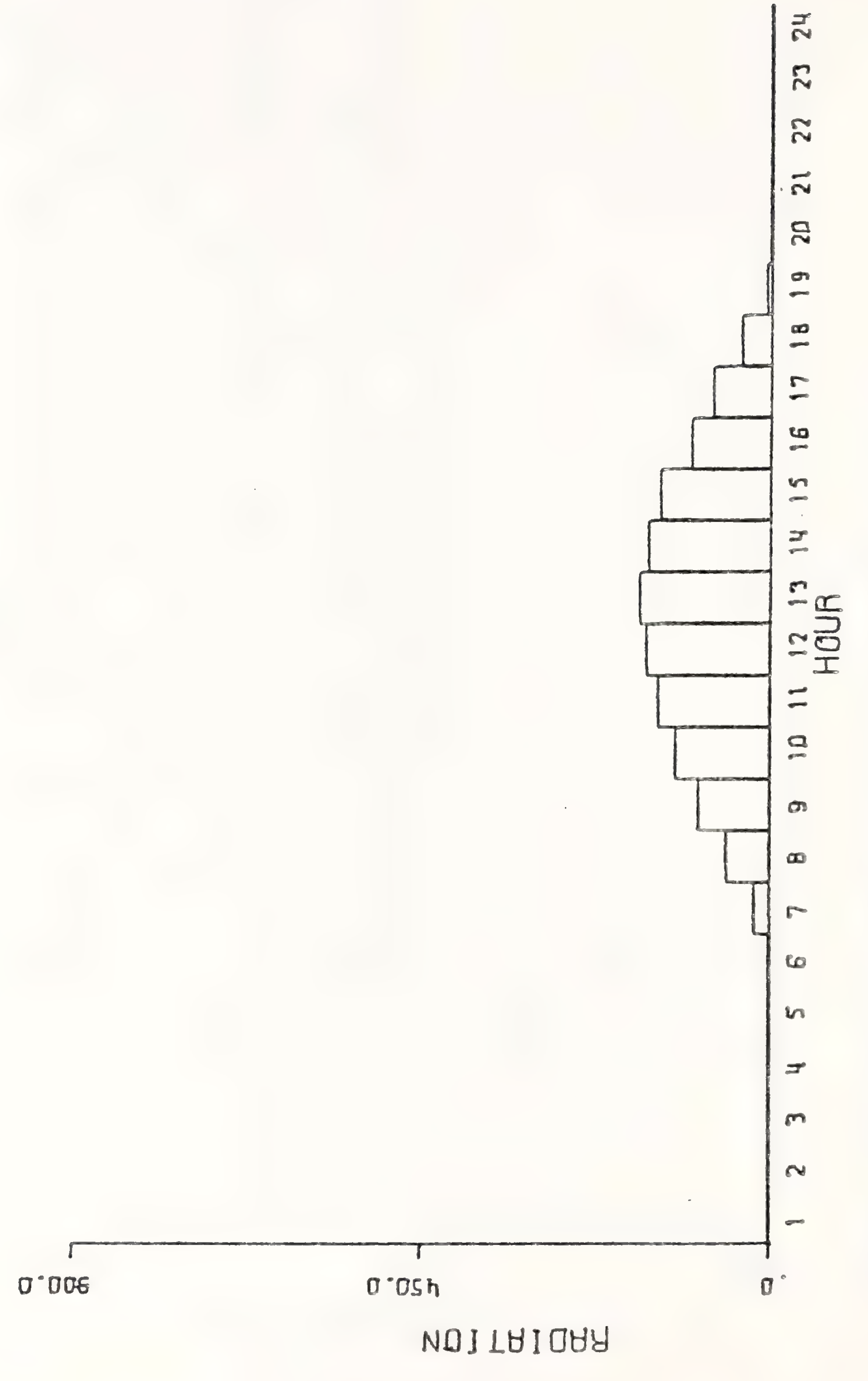
DIURNAL VARIATION OF TEMPERATURE AT 100 FEET (DEG F)
SITE - 23



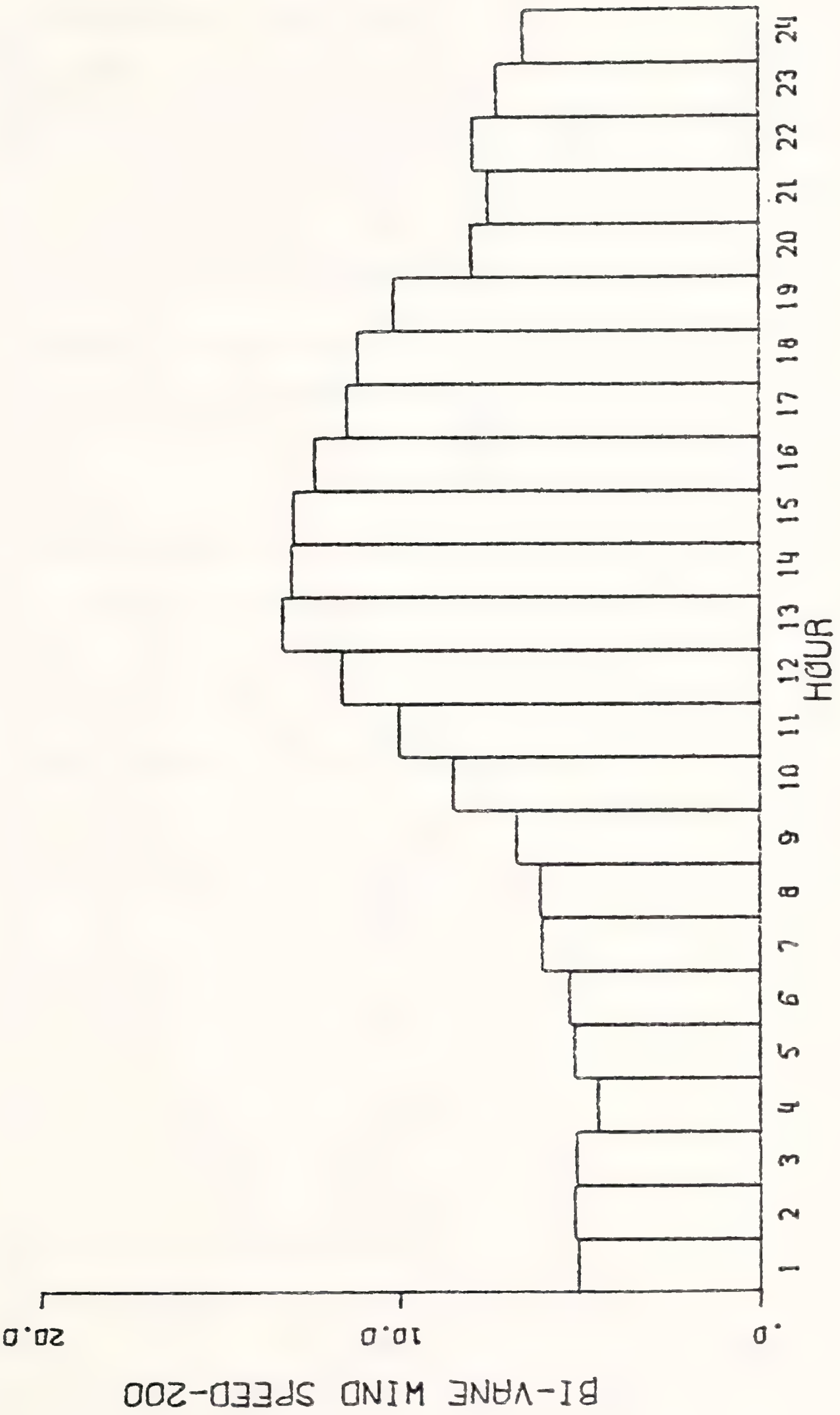
DIURNAL VARIATION OF TEMPERATURE AT 200 FEET (DEG F)
SITE - 23



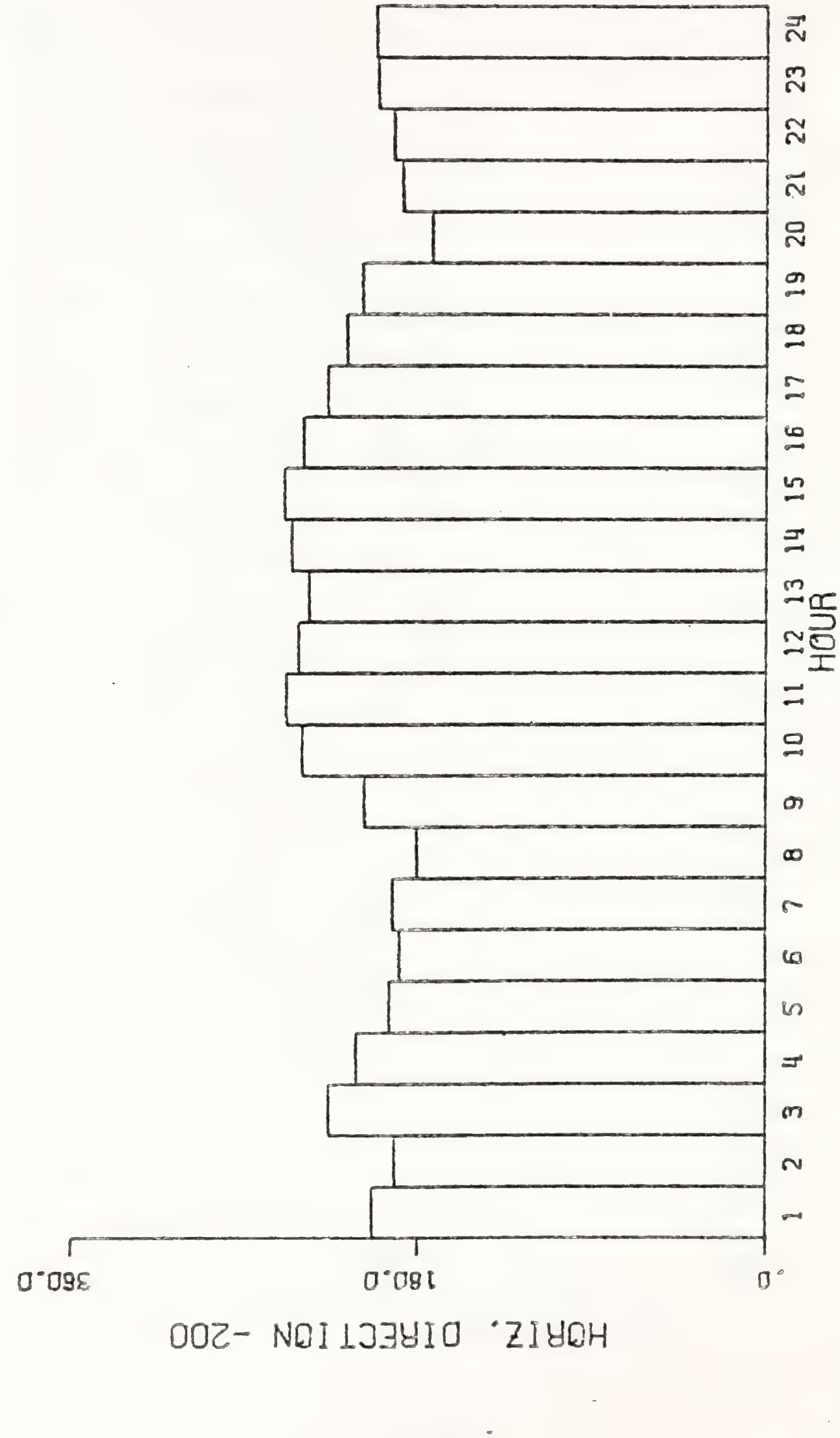
DIURNAL VARIATION OF BAROMETRIC PRESSURE
SITE - 23



HOURLY TOTAL SOLAR RADIATION(LANGLEY)
SITE - 23



DIURNAL VARIATION OF BI-VANE WIND SPEED AT 200 FEET
SITE - 23



DIURNAL VARIATION OF HORIZONTAL BI-VANE WIND DIRECTION AT 200 FEET
SITE - 23

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                    C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
               STABILITY CLASS DETERMINATION USING PYRANOMETER RECORDING
                            PERIOD( 4/ 1/77 TO  4/30/77)

                                            HOUR
       1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24

4/ 1                           D   C   C   C   C   D   D   D   C   C   C   D
4/ 2                               C   D   C   C   D   D   C   D   D   D   D
4/ 3                           C   B   C   C   C   D   D   D   D   D   C   D   D
4/ 4                           C   C   C   B   B   B   B   C   B   C   D   C
4/ 5                           C   C   C   C   B   B   B   B   B   C   C   C   C
4/ 6                           C   C   B   B   B   B   B   B   B   C   C   D   D
4/ 7                           C   B   B   C   B   B   B   C   C   B   C   D   C
4/ 8                           C   C   C   C   D   D   D   B   D   D   D   D   D
4/ 9                           D   C   C   D   D   D   D   D   D   D   D   D   D
4/10                           D   C   D   D   D   D   D   D   D   D   D   D   D
4/11                           C   C   D   D   C   B   D   D   D   D   D   D
4/12                               C   C   D   D   C   D   C   C   D   C   C   C
4/13                               D   C   C   C   C   D   D   D   D   D   D   C
4/14                           C   B   C   D   D   D   D   D   D   D   D   D   D
4/15                           D   D   D   D   D   D   D   D   D   D   D   D   D
4/16                           C   C   C   C   C   C   B   B   B   C   C   D   C
4/17                           C   C   C   B   B   B   B   B   B   D   D   D   C
4/18                           C   C   C   B   B   B   D   D   D   D   D   D   D
4/19                               D   D   D   D   D   D   D   D   D   C   C
4/20                           C   C   C   C   C   B   B   C   B   D   D   D   D
4/21                       C   C   C   B   A   B   B   B   B   C   C   C   C   D
4/22                       C   C   C   C   B   B   B   B   B   B   C   C   D   D
4/23                           C   C   B   B   B   B   B   B   B   B   C   C   D
4/24                       C   C   C   C   B   B   B   B   C   D   B   D   C   D
4/25                       C   C   B   C   B   B   B   B   C   C   C   C   D   C
4/26                       C   C   B   C   B   C   D   D   D   D   D   C   D   D
4/27                       C   C   C   C   C   C   C   D   C   C   D   D   D   D
4/28                       C   C   D   D   C   B   D   D   D   D   D   D   D   D
4/29                           C   B   B   B   B   B   D   B   C   C   C   C   D
4/30                       D   C   B   C   C   B   B   B   B   C   D   D   D   D

* NON-ZERO PYRANOMETER READING BUT STABILITY CLASS UNCERTAIN SINCE NIGHTTIME NET RADIATION INDEX IS REQUIRED
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C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(4/ 1/77 TO 4/30/77)

	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4/ 1	E	E	E	D	B	A	B	A	A	B	B	B	C	B	B	B	B	C	D	D	D	D	D	C
4/ 2	D	D	E	E	D	E	C	A	B	B	B	B	B	B	B	B	B	B	B	C	B	C	D	E
4/ 3	D	D	C	D	D	E	D	B	B	B	C	C	D	D	D	D	C	B	D	D	F	D	E	F
4/ 4	F	F	E	E	E	E	F	E	A	A	B	B	B	B	B	B	B	A	B	D	D	D	E	E
4/ 5	E	E	D	E	E	E	E	D	A	B	A	A	A	A	A	B	B	A	A	E	F	F	E	F
4/ 6	F	F	F	F	F	F	F	D	A	A	A	B	B	B	B	B	B	B	E	F	F	F	F	F
4/ 7	F	F	F	F	F	F	F	A	A	A	B	B	B	B	B	A	B	B	D	F	F	F	F	F
4/ 8	F	F	F	F	F	F	F	E	B	B	D	D	C	B	D	D	D	C	D	F	E	E	E	D
4/ 9	D	E	E	F	E	E	E	B	C	D	D	D	D	D	D	D	D	D	D	E	E	E	F	E
4/10	F	E	F	F	E	F	E	B	D	D	D	D	D	D	D	C	C	B	C	F	F	F	F	D
4/11	D	E	F	F	F	E	E	A	B	B	B	B	C	D	D	D	D	D	D	D	E	E	D	B
4/12	B	B	D	B	D	D	D	D	A	B	B	B	B	A	B	B	A	A	A	E	F	F	E	F
4/13	F	E	E	D	E	E	D	B	A	A	B	B	D	D	D	C	B	B	B	F	E	E	F	F
4/14	F	F	F	F	F	E	E	B	B	C	D	D	D	C	D	D	D	C	D	D	D	D	E	D
4/15	D	D	D	C	B	B	B	B	B	B	B	B	B	H	B	B	B	B	B	A	B	B	A	A
4/16	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	A	D	E	F	F	F
4/17	F	F	F	F	E	F	F	D	A	A	A	A	B	B	B	B	B	B	C	F	E	B	D	C
4/18	E	E	E	E	F	F	E	A	A	A	B	B	D	D	D	C	D	D	D	C	C	C	C	C
4/19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	D	D	E	E	D	C
4/20	D	E	E	E	D	D	D	B	B	B	B	B	C	B	B	C	C	C	D	E	E	F	F	F
4/21	F	F	F	F	F	F	F	D	A	A	A	B	B	B	B	A	A	A	B	E	F	F	F	F
4/22	F	F	F	F	F	F	F	A	A	A	B	B	B	B	B	B	B	B	C	D	E	F	F	F
4/23	F	F	F	F	F	F	F	A	A	B	B	B	B	B	B	B	C	B	B	A	D	E	F	F
4/24	F	F	F	F	F	E	F	A	A	A	B	B	B	B	C	C	C	B	B	C	E	F	F	F
4/25	F	F	F	F	F	F	F	D	A	B	B	B	B	C	B	B	B	B	A	D	F	F	F	F
4/26	F	F	F	F	F	F	F	A	B	B	B	D	D	D	C	C	B	B	B	E	F	F	F	E
4/27	F	E	F	F	F	F	E	D	B	B	B	C	D	B	B	B	D	C	B	D	E	E	E	E
4/28	E	F	F	F	F	F	F	B	B	A	A	D	D	C	D	C	B	B	B	B	C	D	E	E
4/29	E	F	F	F	F	E	F	D	A	A	B	B	C	B	B	B	B	A	B	D	E	F	F	F
4/30	E	F	F	F	F	F	F	A	B	B	B	B	B	B	B	C	C	B	B	F	F	F	E	E

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                 C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
               STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                          PERIOD( 4/ 1/77 TO  4/30/77)

                            HOURLY WIND AND DIRECTION
                               A STABILITY CLASS

                                          HOUR
         1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24

4/ 1                         3       4   3
                           ESE     ESE ESE
4/ 2                                 4
                                    SE
4/ 3

4/ 4                                     0   2                               4
                                         E NNE                             NNW
4/ 5                                     2       3   2   3   3   3           3   1
                                       ENE     NNE  NW NNW   N   N           N  NE
4/ 6                                     3   3   3
                                       NNE SSE  SE
4/ 7                                 4   2   2                       4
                                     E ENE NNE                     WNW
4/ 8

4/ 9

4/10

4/11                                 4
                                   WSW
4/12                                     4                   4           2   1   1
                                       NNW                 WNW           W SSW  SW
4/13                                     4   2
                                       SSE WSW
4/14

4/15                                                                                 3           2   2
                                                                                    NW           W   W
4/16     2   3   3   3   1   1   1   1   3   1   1                               3
       WNW WNW  NW  NW WSW SSW ENE SSW  NW   N WNW                               N
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                              C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                            STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                                     PERIOD( 4/ 1/77 TO  4/30/77)

                                        HOURLY WIND AND DIRECTION
                                           A STABILITY CLASS

4/17                                 2   3   3   4
                                   NNE NNW NNW NNE
4/18                             1   2   2
                               NNW   N NNE
4/19                                                                     4   2
                                                                       WNW   E
4/20

4/21                                 2   2   2                       4   4   4
                                     N  NE  NW                       W  SE ESE
4/22                             1   2   3
                                NE   N NNW
4/23                             2   3                                           3
                                 W  NW                                         ENE
4/24                             1   2   3
                               NNW NNW NNW
4/25                                 2                                       3
                                     W                                      NW
4/26                             3
                               ESE
4/27

4/28                                     2   3
                                       WNW   S
4/29                                 3   3                               3
                                   NNE   N                               W
4/30                             3
                                 E
```

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(4/ 1/77 TO 4/30/77)

HOURLY WIND AND DIRECTION
B STABILITY CLASS

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4/ 1					4 E		6 ESE			6 SW	10 SSW	9 SW		10 S	6 S	9 SW	9 WSW							
4/ 2									8 SSE	7 S	7 WSW	10 NW	5 WNW	7 W	8 NW	7 WNW	6 W	8 WNW	9 NW		3 WNW			
4/ 3								3 WNW	6 NW	8 NW								10 N						
4/ 4											5 NW	9 NNW	9 NNW	8 NNW	8 NW	8 NNW	5 NE		9 WSW					
4/ 5										6 N						4 NNW	5 N							
4/ 6												5 SE	6 SW	7 SW	6 WSW	7 SW	6 SSW	7 SSW						
4/ 7											4 NNW	8 SW	7 WSW	8 WSW	6 SSW		5 NW	5 WSW						
4/ 8									7 SE	11 S				10 SSW										
4/ 9								12 SE																
4/10								11 SSW										10 WSW						
4/11									8 S	10 W	6 ESE	4 ESE												7 W
4/12	6 W	9 WSW		2 W						8 N	7 N	7 NNW	5 NW		5 NW	4 NW								
4/13								7 ESE			6 WSW	11 SW					8 WSW	4 W	3 NW					
4/14								5 ESE	6 ENE															
4/15					6 WNW	6 NW	8 NW	8 NW	7 NW	7 NW	6 NW	5 WNW	5 WNW	5 WNW	5 NW	8 NNW	8 NW	8 NNW	6 NW		5 NW	5 NW		
4/16												4 WNW	6 NW	8 NW	6 NNW	7 NNW	5 NNW	4 NNW						

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                C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
               STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                        PERIOD( 4/ 1/77 TO  4/30/77)

                          HOURLY WIND AND DIRECTION
                             B STABILITY CLASS

4/17                                                    5   6   4   6   5   9               8
                                                        N NNW WNW WSW   N   N             NNE
4/18                                            4   9
                                              NNW   W
4/19  10   8   7   5   6   5   5   7   6   7  10  10  10   9   8   5
      NW  NW  NW  NW  NW  NW WNW WNW  NW  NW  NW  NW  NW  NW  NW  NW
4/20                                1   5   8   8   9       9  10
                                  WNW  NW NNW NNW NNW       N   N
4/21                                                6   5   6   4               5
                                                  NNE   N  NW   W               S
4/22                                            5   5   6   6   6   6   5   7
                                               NW WNW  NW WNW NNW  NW   N NNW
4/23                                        4   4   6   8   8   5   6       9  10
                                           NW  NW   W NNW NNW NNW  NW     ENE ENE
4/24                                            6   9   9   7              11  10
                                               NW NNW NNW   N             NNE  NE
4/25                                        5   4   7   8       8  10   9  10
                                          NNW NNW   N   N       W  NW WNW  NW
4/26                                    6   4   7                       9   7   9
                                       SW WNW WNW                      SW  SW  SW
4/27                                    5   8   8           7   7   8          10
                                      ESE SSW  SW          SE SSE SSE          SE
4/28                                9   6                               6   8  10   8
                                  SSW SSE                             SSW   S SSE SSW
4/29                                            9   6       9   6   5   5       8
                                              NNW WNW     NNW WNW   W WSW       S
4/30                                    4   7   9   7   8   8   7          10   9
                                      ENE  SW SSW  SW SSE SSE   S          SW  SW
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C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(4/ 1/77 TO 4/30/77)

HOURLY WIND AND DIRECTION
C STABILITY CLASS

	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4/ 1													13 SW					11 S						5 SSE
4/ 2							9 S													5 WNW		2 W		
4/ 3			2 NW								10 NNW	13 NNW					11 N							
4/ 4																								
4/ 5																								
4/ 6																								
4/ 7																								
4/ 8													12 SSW					11 SSW						
4/ 9									12 S															
4/10																12 SW	12 SW		7 W					
4/11													12 S											
4/12																								
4/13																12 SW								
4/14										11 SSE				13 SW				12 WSW						
4/15				5 WNW																				
4/16																								

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                    C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                  STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                           PERIOD( 4/ 1/77 TO  4/30/77)

                              HOURLY WIND AND DIRECTION
                                 C STABILITY CLASS

    4/17                                                                                   4                   7
                                                                                          NE                 NNE
    4/18                                                                       14                 13  11  13  11  12
                                                                               SW                 NW  NW NNW NNW NNW
    4/19                                                                                                       0
                                                                                                              NW
    4/20                                                          11          11  13  12
                                                                   N           N   N   N
    4/21

    4/22                                                                                   9
                                                                                           N
    4/23                                                                           10
                                                                                    N
    4/24                                                                   11  11  12           5
                                                                          NNW NNE   N          NE
    4/25                                                              11
                                                                     NNW
    4/26                                                                   12  12
                                                                          SSE WSW
    4/27                                                      11                  12
                                                             SSW                  SE
    4/28                                                              13      13                  3
                                                                     SSW     SSW                ESE
    4/29                                                          12
                                                                  NW
    4/30                                                                       12  11
                                                                              SSW SSW
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                 C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
               STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                       PERIOD( 4/ 1/77 TO  4/30/77)

                          HOURLY WIND AND DIRECTION
                             D STABILITY CLASS

                                             HOUR
        1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24

4/ 1                4                                                          17  10   3   4   6
                  ENE                                                           S SSE ESE SSE SSE
4/ 2    3   3           2                                                                       5
      ESE  SE         SSE                                                                      NW
4/ 3    1   3       2   3       4                       16  16  13  14          7   2       3
      NNW WNW     WNW WNW     WNW                        N   N   N   N          N NNE     ESE
4/ 4                                                                                6   4   4
                                                                                  ESE   E   E
4/ 5            3                   1
               SW                 SSE
4/ 6                                2
                                  ESE
4/ 7                                                                            4
                                                                               SW
4/ 8                                          15  14          13  13  14        8                  16
                                             SSW SSW         SSW SSW SSW      SSW                   S
4/ 9   15                                 16  19  21  22  21  20  20  16  15    9
      SSE                                  S   S SSW SSW   S SSW   S SSW SSW    S
4/10                                  16  17  17  16  18  18  15                                    5
                                     SSW SSW SSW SSW SSW SSW  SW                                    W
4/11    4                                                 15  16  17  16  18  12   6           6
        W                                                  W WNW WNW WNW   W SSW   S           W
4/12            2       4   4   3   3
              WSW     WSW WSW   W  NW
4/13                1           5                   17  19  15
                    N         WNW                   SW  SW  SW
4/14                                          14  15  16      15  13  14      19  17  13   9        5
                                             SSW SSW   S      SW  SW  SW      NW  NW  NW  NW        W
4/15    2   3   5
      WNW WNW   W
4/16                                                                                3
                                                                                   NE
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            C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
         STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                     PERIOD( 4/ 1/77 TO  4/30/77)

                       HOURLY WIND AND DIRECTION
                          D STABILITY CLASS

4/17                                 1                                                         8
                                    NE                                                        NE
4/18                                                    16  15  16      15  18  17
                                                       SSW SSW  SW     WSW NNW NNW
4/19                                                                                 0   0         0
                                                                                   SSE ESE        NW
4/20     0               0   0   0                                               9
        NW              NW  NW  NW                                             NNW
4/21                                 1
                                    NE
4/22                                                                                     5
                                                                                       NNE
4/23                                                                                         4
                                                                                           ENE
4/24
4/25                                 3                                               3
                                   NNE                                               S
4/26                                                13  19  14
                                                   SSW   S   S
4/27                                 3                   6              14          14
                                   ESE                 SSE             SSE          NE
4/28                                                15  15      16                         3
                                                     S   S     SSW                        SE
4/29                                 2                                               7
                                   ESE                                             SSW
4/30
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                              C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                            STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                                      PERIOD( 4/ 1/77 TO  4/30/77)

                                         HOURLY WIND AND DIRECTION
                                            E STABILITY CLASS

                                                 HOUR
           1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24


   4/ 1    3   3   3
           W   W WNW
   4/ 2            9   8       5                                                                       4
                 SSE SSE      SE                                                                       N
   4/ 3                        4                                                                   5
                             WNW                                                                  SE
   4/ 4            2   2   2   1       3                                                           3   1
                 SSW SSE SSW SSW       E                                                         WSW ESE
   4/ 5    1   3       2   1   2   1                                                   1           1
         SSE WSW     WSW   N   E  SE                                                   E          NE
   4/ 6                                                                            6
                                                                                 SSW
   4/ 7

   4/ 8                                5                                               9  10  12
                                     ESE                                             SSW   S   S
   4/ 9       10   8       9  10  12                                              10  11  11       6
              SE ESE      SE SSE  SE                                               S   S   S     SSE
   4/10        7           7       6
             SSE           S     SSW
   4/11        3               6   3                                                   5   2
             WSW             NNW  SW                                                   S SSE
   4/12                                                                            1           4
                                                                                   S           W
   4/13        0   1       2   2                                                       8   9
              NW  NW     ESE WNW                                                       S   S
   4/14                        4   4                                                           6
                              SE ESE                                                         WNW
   4/15

   4/16                                                                                1
                                                                                     WNW
                            C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                          STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                                     PERIOD( 4/ 1/77 TO  4/30/77)

                                       HOURLY WIND AND DIRECTION
                                           E STABILITY CLASS

4/17                    1                                                               9
                      WSW                                                              NE
4/18    5   6   4   5           1
      NNW NNW   W   W         SSW
4/19                                                                                    0   0
                                                                                       SE WNW
4/20        0   0   0                                                               6   5
           NW  NW  NW                                                             NNE   E
4/21                                                                               10
                                                                                  SSW
4/22                                                                                    2
                                                                                      ESE
4/23                                                                                        2
                                                                                            S
4/24                        2                                                           1
                           SW                                                         ESE
4/25
4/26                                                                               10               3
                                                                                  SSW             WSW
4/27        7                   1                                                      12  11   7   8
          SSE                 SSE                                                      SE ESE ENE  SE
4/28    2                                                                                       2   3
       SE                                                                                      SE  SE
4/29    3                   2                                                           5
      ESE                 SSW                                                          SE
4/30    1                                                                                      11  11
        S                                                                                       S   S
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C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(4/ 1/77 TO 4/30/77)

HOURLY WIND AND DIRECTION
F STABILITY CLASS

	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4/ 1																								
4/ 2																								
4/ 3																					2 WSW			4 S
4/ 4	3 SW	1 SSW					2 SE																	
4/ 5																					5 SSE	5 SSE		0 SE
4/ 6	2 N	3 ESE	3 SE	4 S	2 W	1 ENE	2 SE													9 SSW	4 SSW	4 ESE	5 SE	4 SE
4/ 7	2 S	2 ESE	2 SE	2 N	2 NNE	1 SSE	4 SE													5 SSE	4 S	4 SSE	2 SE	1 SE
4/ 8	0 E	2 S	0 NE	1 S	2 SSE	4 SE	4 ESE													6 SSW				
4/ 9				5 ESE																			3 S	
4/10	7 SSE		3 SE	7 SE		7 SSW														6 WSW	2 S	2 NW	6 W	
4/11			1 SW	2 W	5 SW																			
4/12																					2 WSW	5 W		2 W
4/13	2 SW																			4 SE			6 S	2 ESE
4/14	6 SE	2 SE	4 SE	3 SSE	5 SE																			
4/15																								
4/16																						1 S	1 SSW	2 S

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          C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
        STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                  PERIOD( 4/ 1/77 TO  4/30/77)

                  HOURLY WIND AND DIRECTION
                      F STABILITY CLASS

4/17       1   2   2   2       1   1                                                   6
           N   E  NW NNE       N  NE                                                  SE
4/18                       3   1
                          SW  SW
4/19

4/20                                                                                           5   1   1
                                                                                              SE  SW   N
4/21       1   1   1   2   1   1   0                                                       5   2   1   1
          NW ENE WNW   E ESE  SW   E                                                       S ESE ESE   E
4/22       1   3   2   3   1   2   1                                                           3   2   0
         ENE ESE   S SSW SSE   S NNW                                                          SE  SE ESE
4/23       1   1   2   1   0   2   1                                                               2   1
          NE NNE NNW   N   S WSW   W                                                               S SSE
4/24       1   1   1   2   1       1                                                           2   3   5
         NNW ENE   S NNW   W     ENE                                                         WNW   W WSW
4/25       1   1   2   1   0   3   3                                                       9   3   3   3
         ENE ENE SSW   N NNE ESE ESE                                                     SSW   S   E  SE
4/26       5   3   2   3   2   3   3                                                       9   5   4
         SSE ESE ESE   E   E ESE ESE                                                     SSW WSW ESE
4/27       6       2   3   3   3
         SSW     NNE   E ENE   E
4/28           1   1   1   3   2   4
               S   W   S  SE  SE WSW
4/29           3   1   4   3       2                                                           3   4   6
               E  SE  SE SSE     ENE                                                          SE SSE SSE
4/30           5   6   6   6   4   4                                                   9   8   9
             ESE  SE  SE SSE ESE ESE                                                 SSW SSW   S
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C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(4/ 1/77 TO 4/30/77)

	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4/ 1	D	D	C	A	B	A	B	A	A	B	B	B	C	B	B	B	B	C	D	B	B	B	B	B
4/ 2	A	A	D	D	C	D	B	A	B	B	B	B	B	B	B	B	B	B	B	A	A	A	B	C
4/ 3	A	A	A	A	A	D	C	A	B	B	C	C	D	D	D	D	C	B	B	C	E	D	D	E
4/ 4	E	E	D	D	D	D	E	E	A	A	B	B	B	B	B	B	B	A	B	D	C	D	D	D
4/ 5	D	D	D	D	E	D	D	B	A	B	A	A	A	A	A	B	B	A	A	D	E	F	E	F
4/ 6	F	F	F	F	E	E	E	D	A	A	A	B	B	B	B	B	B	B	D	F	F	E	F	F
4/ 7	F	F	F	E	E	F	F	D	A	A	B	B	B	B	B	A	B	B	D	E	E	F	E	F
4/ 8	F	F	F	F	F	F	F	E	B	B	D	D	C	B	D	D	D	C	D	F	E	E	E	D
4/ 9	D	E	E	E	E	E	E	B	C	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
4/10	E	E	E	E	E	F	E	B	D	D	D	D	D	D	D	C	C	B	D	F	E	F	E	D
4/11	D	D	E	F	F	E	D	A	B	B	B	B	C	D	D	D	D	D	B	D	D	D	D	B
4/12	B	B	A	A	B	C	D	B	A	B	B	B	B	A	B	B	A	A	A	D	E	E	E	D
4/13	E	D	D	D	D	D	D	B	A	A	B	B	D	D	D	C	B	B	A	E	E	E	E	F
4/14	F	F	F	E	E	E	E	B	B	C	D	D	D	C	D	D	D	C	D	D	C	D	D	D
4/15	D	D	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	A	A
4/16	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	A	D	E	E	F	F
4/17	F	F	F	F	E	E	F	E	A	A	A	A	B	B	B	B	B	C	D	E	E	B	B	B
4/18	D	E	E	E	E	E	E	A	A	A	B	B	D	D	D	C	D	D	D	C	C	C	C	C
4/19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	B	D	D	D	A
4/20	C	D	D	D	D	C	D	A	B	B	B	B	C	B	B	C	C	C	C	D	D	E	E	E
4/21	E	F	E	F	F	F	F	D	A	A	A	B	B	B	B	A	A	A	B	E	E	E	E	F
4/22	E	E	F	F	F	F	F	C	A	A	B	B	B	B	B	B	B	B	D	D	E	E	E	F
4/23	F	F	F	F	F	F	E	A	A	B	B	B	B	B	B	B	C	B	B	C	D	E	E	E
4/24	E	E	E	F	E	E	E	A	A	A	B	B	B	B	C	C	C	B	B	D	E	E	E	E
4/25	E	E	F	F	F	F	F	E	A	B	B	B	B	C	B	B	B	B	C	D	F	F	F	F
4/26	E	F	F	F	E	F	F	B	B	B	B	D	D	D	C	C	B	B	C	E	F	F	E	D
4/27	F	E	F	F	F	E	D	D	B	B	B	C	D	C	B	B	D	C	C	D	E	E	E	E
4/28	D	E	E	E	E	F	F	B	B	A	A	D	D	C	D	C	B	B	B	B	B	D	E	E
4/29	E	E	E	E	E	E	E	D	A	A	B	B	C	B	B	B	B	A	C	E	E	F	F	F
4/30	E	F	F	F	E	E	E	A	B	B	B	B	B	B	B	C	C	B	D	F	F	F	E	E

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         C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
       STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                  PERIOD( 4/ 1/77 TO  4/30/77)

                    HOURLY WIND AND DIRECTION
                        A STABILITY CLASS

                                                HOUR
           1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24

4/ 1                   4       3       4   3
                      NE     ESE      SE  SE
4/ 2       3   4                       6                                               6   3   2
          SE SSE                     SSE                                              NW  NW WNW
4/ 3       1   3   3   2   3           4
           N  NW  NW  NW WNW         NNW
4/ 4                                       0   2                               5
                                          NE   N                             NNW
4/ 5                                       1       3   2   2   3   3           3   0
                                         ENE     NNE  NW NNW NNE   N           N NNE
4/ 6                                       2   3   3
                                          NE SSE  SE
4/ 7                                       2   2                       3
                                           E   N                     NNW
4/ 8

4/ 9

4/10

4/11                                   4
                                     WSW
4/12               4   3                   6                   3           2   1   1
                 WSW   W                 NNW                 WNW           W  SW WSW
4/13                                       5   2                                   4
                                         SSE WSW                                  NW
4/14

4/15                                                                                   4           2   2
                                                                                      NW         WNW WNW
4/16       3   3   4   3   0   1   1   1   4   1   1                               3
  [illegible]  NW NNW NNW SSW   S ENE SSE NNW NNW  NW                               N
```

```
              C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
            STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                      PERIOD( 4/ 1/77 TO  4/30/77)

                         HOURLY WIND AND DIRECTION
                             A STABILITY CLASS

4/17                                    1   2   3   3
                                       NE   N NNW   N
4/18                                1   2   2
                                  WNW NNE NNE
4/19                                                                4   2   0                       0
                                                                   NW ENE  SE                     NNE
4/20                                4
                                   NW
4/21                                    1   2   2                4   4   4
                                      NNE NNE   S                W SSE ESE
4/22                                    1   2
                                        N NNW
4/23                                1   2
                                  WSW  NW
4/24                                0   2   3
                                  NNW NNW NNW
4/25                                    2
                                        W
4/26

4/27

4/28                                        2   3
                                          WNW   S
4/29                                    3   3                            3
                                      NNE   N                          WNW
4/30                                3
                                  ESE
```

```
                                C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                              STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                                         PERIOD( 4/ 1/77 TO  4/30/77)

                                           HOURLY WIND AND DIRECTION
                                               B STABILITY CLASS

                                                   HOUR
           1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24


    4/ 1                   4       7           6  10  10      10   6   9  10          13   4   6   7   7
                           E     ESE          SW  SW WSW       S  SW  SW WSW         SSE  SE   S SSE SSE
    4/ 2                          11       9   8   7   9   5   7   9   8   7   9  10               6
                                 SSW       S SSW WSW  NW WNW   W  NW WNW   W WNW NNW              NW
    4/ 3                                   5   8                               10   7
                                          NW  NW                                N   N
    4/ 4                                           5   9  10   8   9   8   5      10
                                                 NNW NNW NNW NNW NNW NNW  NE       W
    4/ 5                               1       6                       4   5
                                      SE       N                     NNW   N
    4/ 6                                               5   6   7   7   7   6   7
                                                     SSE  SW  SW WSW WSW SSW SSW
    4/ 7                                           4   8   7   8   6       5   5
                                                 WSW WSW WSW WSW SSW      NW WSW
    4/ 8                                   7  11              11
                                         SSE SSW             SSW
    4/ 9                              13
                                      SE
    4/10                              12                                      11
                                     SSW                                     WSW
    4/11                                   9  11   6   4                          15                   8
                                         SSW   W ESE ESE                          SW                   W
    4/12   8  11           4           4       8   7   7   5       5   4
           W WSW           W          NW       N   N NNW NNW     NNW  NW
    4/13                               9           7  11                   9   4
                                     ESE         WSW  SW                 WSW   W
    4/14                               6   6
                                      SE   E
    4/15           6   6   7   7   8   8   8   7   7   6   5   6   6   8   8   8   6       5   6
                 WNW WNW  NW  NW NNW  NW  NW NNW  NW WNW WNW  NW NNW NNW NNW NNW  NW      NW  NW
    4/16                                               4   6   8   7   7   5   4
                                                     W[illegible]  NW  NW NNW NNW   N NNW
```

```
C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD( 4/ 1/77 TO  4/30/77)

HOURLY WIND AND DIRECTION
B STABILITY CLASS

4/17                                                                5    6    4    7    4                        9    9    7
                                                                    N  NNW   NW  WSW   NE                      NNE   NE   NE
4/18                                                      4    9
                                                        NNW    W
4/19   10    9    7    5    7    5    5    7    6    6   10   10   11   10    9    5                   1
      NNW   NW  NNW   NW   NW   NW   NW   NW   NW   NW   NW   NW   NW   NW  NNW   NW                 ESE
4/20                                            4    8    8    9        10   11
                                               NW  NNW  NNW    N         N    N
4/21                                                           6    5    6    4                   6
                                                              NE  NNE   NW   NW                   S
4/22                                                      5    5    6    5    6    6    5    8
                                                        NNW   NW  WNW   NW  NNW   NW    N    N
4/23                                                 3    5    6    8    8    5    5         9   11
                                                    NW   NW    W    N  NNW  NNW   NW       ENE  ENE
4/24                                                      6    9   10    7                  12   11
                                                         NW  NNW    N  NNE                 NNE   NE
4/25                                                 5    4    7    9         8   10   10   11
                                                   NNW  NNW    N    N         W   NW   NW   NW
4/26                                       3    6    4    7                             10    7
                                         SSE   SW  WNW  WNW                             SW   SW
4/27                                            6    9    9                   7    8
                                               SE   SW  WSW                   S  SSE
4/28                                      11    6                                        6    8   10    9    3
                                          SW  SSE                                       SW    S  SSE  SSW   SE
4/29                                                      9    7         9    7    5    5
                                                        NNW  WNW       NNW  WNW    W    W
4/30                                            4    7    9    8    8    9    8             11
                                                E   SW  SSW   SW    S  SSE  SSW             SW
```

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(4/ 1/77 TO 4/30/77)

HOURLY WIND AND DIRECTION
C STABILITY CLASS

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4/ 1			4 NW										14 SW					12 SSW						
4/ 2					3 S																			5 N
4/ 3							5 NNW				10 NNW	13 N					12 N			2 NNE				
4/ 4																					5 E			
4/ 5																								
4/ 6																								
4/ 7																								
4/ 8													13 SW					12 SW						
4/ 9									12 SSW															
4/10																13 SW	13 SW							
4/11													13 SSW											
4/12						5 W																		
4/13																13 SW								
4/14										12 S				14 SW				13 W			14 NNW			
4/15																								
4/16																								

```
                 C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
               STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                     PERIOD( 4/ 1/77 TO  4/30/77)

                       HOURLY WIND AND DIRECTION
                          C STABILITY CLASS

                                                                                              9
4/17                                                                                          N
                                                                                   15                  14   12   15   12   13
4/18                                                                              WSW                  NW  NNW  NNW  NNW  NNW

4/19
         0                        3                                 11              12   13   12   10
4/20      N                      NW                                  N               N    N    N    N

4/21
                                            1
4/22                                       NE
                                                                                        11              3
4/23                                                                                     N            ENE
                                                                              12   11   13
4/24                                                                         NNW  NNE    N
                                                                         11                        3
4/25                                                                    NNW                       NW
                                                                              12   12                 10
4/26                                                                           S  WSW                WSW
                                                               12         7                  14   13
4/27                                                           SW        SE                 SSE   SE
                                                                         13        14
4/28                                                                     SW       SSW
                                                                    12                             9
4/29                                                                NW                           SSW
                                                                                   12   12
4/30                                                                               SW   SW
```

```
                C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
               STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                        PERIOD( 4/ 1/77 TO  4/30/77)

                         HOURLY WIND AND DIRECTION
                             D STABILITY CLASS

                                              HOUR
         1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24

4/ 1     3   3                                                                  19
       WNW WNW                                                                   S
4/ 2            10   9       6
               SSE SSE     SSE
4/ 3                         6                          17  16  14  15                           3   4
                           NNW                           N   N   N   N                           E  SE
4/ 4             3   2   2   1                                                       6       5   3   1
               WSW  SW  SW WSW                                                     ESE     ENE   W  SW
4/ 5     1   3   3   2       1   1                                                   2
        SW   W   W WNW      NE ESE                                                 ENE
4/ 6                                 3                                           7
                                    SE                                         SSW
4/ 7                                 3                                           4
                                   ESE                                         WSW
4/ 8                                             16  15          14  14  14      8                  17
                                                SSW SSW         SSW  SW SSW     SW                   S
4/ 9    15                                   17  20  23  24  22  22  21  18  16  10
         S                                  SSW   S SSW SSW SSW SSW SSW SSW SSW SSW
4/10                                     17  18  18  17  20  20  16              8                   6
                                        SSW  SW SSW  SW  SW  SW  SW              W                 WNW
4/11     3   2                   2                           16  17  18  16  19      7   8   3   7
       WNW WNW                 WSW                            W  NW  NW  NW   W    SSW  SW  SW   W
4/12                             3                                                   0               2
                               WNW                                                 SSW              NW
4/13         1   2   2   2   1   5                       18  20  16
            NW   N NNE   E NNW WNW                       SW  SW  SW
4/14                                             15  16  17      15  14  15      21  19      10   8   6
                                                SSW SSW SSW     WSW WSW WSW      NW  NW     NNW  NW WNW
4/15     3   3
         N  NW
4/16                                                                                 3
                                                                                    NE
```

```
                 C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
               STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                          PERIOD( 4/ 1/77 TO  4/30/77)

                            HOURLY WIND AND DIRECTION
                               D STABILITY CLASS

4/17                                                                           4
                                                                              NE
4/18    6                                           17  16  18      16  19  18
        N                                           SW  SW  SW       W NNW NNW
4/19                                                                                   4   2   2
                                                                                      SE  NW NNW
4/20        0   2   2   4       6                                               7   5
            E WNW WNW WNW      NW                                             NNE   E
4/21                                0
                                    W
4/22                                                                          10   8
                                                                               N NNE
4/23                                                                                   5
                                                                                     ENE
4/24                                                                               8
                                                                                  NE
4/25                                                                               5
                                                                                 SSW
4/26                                            14  20  14                                     3
                                                SW   S SSW                                   WSW
4/27                            2   3                   7           15          16
                               SW  SE                 WNW          SSE         NNE
4/28    2                                       16  16      17                         3
       SE                                      SSW SSW     SSW                       SSE
4/29                                2
                                    E
4/30                                                                          11
                                                                              SW
```

RADIAN
CORPORATION

```
                     C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                   STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                            PERIOD( 4/ 1/77 TO  4/30/77)

                              HOURLY WIND AND DIRECTION
                                  E STABILITY CLASS

                                         HOUR
           1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24


4/ 1

4/ 2

4/ 3                                                                                       1           3
                                                                                          NW           S
4/ 4       2   1                   1   2
           W   W                  SE   E
4/ 5                       1                                                               4       1
                         NNW                                                              SE       S
4/ 6                       2   1   4                                                           3
                         WSW SSE  SE                                                           E
4/ 7                   1   1                                                           4   3       2
                     NNW NNW                                                           S   S     SSE
4/ 8                                   6                                                   9  11  16
                                      SE                                                 SSW   S   S
4/ 9          10   9   6  11  12  15                                                  12  12  12   5   7
              SE ESE  SE SSE   S  SE                                                 SSW   S   S   S   S
4/10       8   8   5   7   9       8                                                       1       6
         SSE SSE   S SSE   S     SSW                                                     WSW     WNW
4/11               1           8
                   N         NNW
4/12                                                                                       2   5   4
                                                                                         WNW WNW WNW
4/13       2                                                                           3   8  12  10
           W                                                                          SE   S   S   S
4/14                   4   6   6   7
                       S SSE SSE SSE
4/15

4/16                                                                                       1   1
                                                                                         NNE   E
                     C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                   STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                            PERIOD( 4/ 1/77 TO  4/30/77)

                               HOURLY WIND AND DIRECTION
                                  E STABILITY CLASS

4/17                     1   0       0                                               6  10
                       WNW   W      NE                                              SE  NE
4/18         7   3   5   2   1   1
             N  NW WNW WNW WNW WSW
4/19
4/20                                                                                         5   1   2
                                                                                           ESE  NE NNW
4/21     1       1                                                                   11   7   2   3
       WSW     NNW                                                                  SSW SSW   S SSW
4/22     0   3                                                                            3   3   2
       SSE ESE                                                                            E  SE  SE
4/23                             1                                                            2   1   0
                               WNW                                                           SE  NW SSW
4/24     0   1   0       1   1   0                                                        2   1   4   4
         N ENE  SW       N WSW   W                                                      NNE NNW WNW   W
4/25     1   0                       2
        SW   E                       E
4/26     4               2                                                           13           3
         S               S                                                           SW         ESE
4/27         8               2                                                           14  12   9   8
           SSW             ENE                                                          ESE ESE  NE ESE
4/28         1   1   0   2                                                                        2   3
            SE NNW   N SSE                                                                      SSW  SW
4/29     4   1   0   2   2   4   1                                                    9   4
         S   E  NE SSE   S  SW ENE                                                  SSW SSE
4/30     3               8   3   4                                                                12  12
       SSW             SSE ESE  SE                                                               SSW SSW
```

```
        C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
     STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
               PERIOD( 4/ 1/77 TO  4/30/77)

                 HOURLY WIND AND DIRECTION
                     F STABILITY CLASS

                             HOUR
          1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24

4/ 1

4/ 2

4/ 3

4/ 4

4/ 5                                                                                                             6         0
                                                                                                               SSE        SE
4/ 6      1    3    3    3                                                                           9    5         4    5
         NW  ESE   SE  SSE                                                                          SW   SW        SE   SE
4/ 7      2    2    2              1    1                                                                     2         3
        SSW   SE   SW            SSE   SE                                                                    SE        SE
4/ 8      2    2    1    0    2    4    5                                                            6
        SSE    S  SSE  SSW  SSE  SSE  SSE                                                           SW
4/ 9

4/10                              12                                                                 7         3
                                 SSW                                                                 W        NW
4/11                     1    5
                         N  WSW
4/12

4/13                                                                                                                       2
                                                                                                                         SSW
4/14      8    4    6
         SE  SSE  SSE
4/15

4/16                                                                                                                  1    1
                                                                                                                     SE    S
```

```
                    C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                  STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                           PERIOD( 4/ 1/77 TO  4/30/77)

                             HOURLY WIND AND DIRECTION
                                F STABILITY CLASS

4/17      0    2    1    1              0
          N    E  WNW    N              E
4/18

4/19

4/20

4/21           0         3    2    0    0                                                                                    1
             SSE       ESE   SE  WSW  WSW                                                                                   SW
4/22                2    1    2    2    1                                                                                    0
                   SE    S  SSW  SSW  NNW                                                                                  ESE
4/23      1    2    0    1    1    1
        ESE   SE    N    E   SE    W
4/24                     2
                       NNW
4/25                1    0    0    2    2                                                                     7    3    1    3
                  SSW  WNW  SSE  ESE  ESE                                                                    SW   SW   NE   SE
4/26           2    2    1         2    3                                                                    11    7
               S  SSW   SE         S  SSE                                                                    SW    W
4/27      8         2    2    1
         SW       NNW  ENE   NE
4/28                               2    5
                                  SE  WSW
4/29                                                                                                               3    6    8
                                                                                                                  SE    S  SSE
4/30           4    8    8                                                                              10   10   11
             SSE  SSE  SSE                                                                              SW   SW  SSW
```

APPENDIX A
STABILITY WIND ROSE DIAGRAMS

APPENDIX A
STABILITY WIND ROSE DIAGRAMS

According to the data presented in AEC Safety Guide No. 23, the relationships between stability classes and σ_Θ are as follows (the values shown are averages for each stability classification...σ_Θ is the standard deviation of horizontal wind direction fluctuations).

Stability Classification	Pasquill Categories	Average Values σ_Θ (degrees)
Extremely Unstable	A	25.0°
Moderately Unstable	B	20.0°
Slightly Unstable	C	15.0°
Neutral	D	10.0°
Slightly Stable	E	5.0°
Moderately Stable	F	2.5°

Stability wind roses obtained at the trailers in the monitoring network are displayed in the following tables. Because of the relatively low heights above the surface (9 meters) at which the wind data is taken, the stability distributions are skewed toward the unstable end of the spectrum. That is, the unstable classes (A, B, and C) have a much higher frequency of occurrence than would be obtained with the Pasquill method of stability categorization (or with instruments at higher levels).

Table 1 depicts the frequency distribution of Pasquill stability categories based on σ_Θ from data collected by M. M. Pendergast and T. V. Crawford at the Savannah River Plant ("Actual Standard Deviations of Vertical and Horizontal Wind Direction Compared to Estimates from Other Measurements", Symposium on Atmospheric Diffusion and Air Pollution, September 9-13, 1974). Three distinct range patterns of stability class

distributions were observed: low, mid, and high, according to the height at which the σ_Θ measurements were taken.

TABLE 1

FREQUENCY DISTRIBUTION OF PASQUILL STABILITY CATEGORIES

	Stability Categories based on σ_θ							
Height, m	A $\sigma_\theta > 23$	B $18 \leq \sigma_\theta < 23$	C $13 \leq \sigma_\theta < 18$	D $8 \leq \sigma_\theta < 13$	E $4 \leq \sigma_\theta < 8$	F $2 \leq \sigma_\theta < 4$	G $\sigma_\theta < 2$	
10	22.6	13.9	21.8	23.9	8.9	0.4	3.5	LOW RANGE
35	19.3	11.3	19.4	32.4	15.9	0.7	0.5	
91	9.6	6.7	13.5	21.7	29.5	15.4	2.5	MID RANGE
137	9.3	5.3	11.7	20.8	28.5	18.4	5.5	
182	7.0	2.9	6.8	17.1	25.9	25.6	14.7	HIGH RANGE
243	7.7	4.3	9.4	17.7	27.6	22.9	10.4	
304	7.2	3.7	8.0	17.2	23.7	23.9	11.3	

Also, Figure 1 (from D. H. Slade, Meteorology and Atomic Energy, 1968, p. 52) demonstrates that the line representing very stable conditions (which by their nature are associated with light winds) branches into three separate lines near the ground. The curve at the left represents the smallest values of σ_Θ usually observed. The curve chat branches off to the right reflects the contribution of very low-level wind direction meander to the total standard deviation. These meandering oscillations decrease in amplitude very rapidly with height under stable conditions. The central curve represents typical inversion conditions. Actually, for a given stability condition, values of σ_Θ will always be greater when the wind is light than when it is strong. This phenomena is most noticeable in the lowest layers.

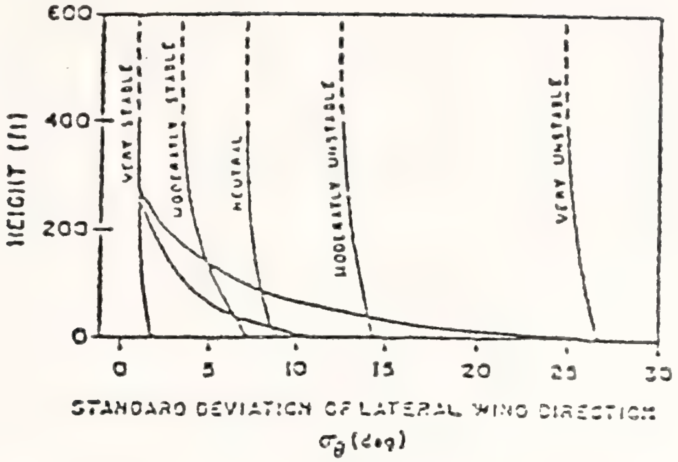

FIGURE 1

The vertical variation of the lateral wind-direction standard deviation (σ_Θ) for various stability regimes. The curves represent average or typical conditions with the exception of the two outer "very stable" lines, which represent extremes.

The large surface values of σ_Θ for unstable conditions do not decrease very rapidly with height. As in the case of very stable conditions, the greatest lateral fluctuations during a very unstable thermal structure occur with very light winds. As a general rule, for a given insolation condition, increasing wind speeds are associated with profiles of σ_Θ that tend toward neutral stability.

The majority of the trailers in the network recorded very light winds throughout the month. Therefore, the stability distributions had a predominance of high σ_Θ values and, hence, unstable classifications. Those trailers with the highest average winds (and fewest nearby obstacles to the flow) generally had the more reasonable and representative low-level stability class distributions.

```
                                     STABILITY WIND ROSE DIAGRAM

                                        C-B SHALE OIL PROJECT
                                LEVEL =  8 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - A
                                                     WIND DIRECTION
                      N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW    TOTAL    %
GROUP MAX SPEED      10   11    9    6    7    8    6    9   17   10   13   11    6    7   10   15
    MPH


    GT    24     :                                                                                 :           0.

    18 -  24     :                                                                                 :           0.

    12 -  18     :                                            1         2                        1 :      4    1.

     7 -  12     :    5    5    1         1    2         2    3   10    8    2         3    4    9 :     55    8.

     3 -   7     :   38   32   13   15   10    7   11    8   15   19   29   15   17   30   45   24 :    328   48.

    LT     3     :   24   22   26   22   25   20   19   18   10   12   12   10   18   20   25   18 :    301   44.

     TOTAL       :   67   59   40   37   36   29   30   28   29   41   51   27   35   53   74   52 :    688

    PERCENT      :  10.   9.   6.   5.   5.   4.   4.   4.   4.   6.   7.   4.   5.   8.  11.   8. :         100.
                 .................................................................................................

                          TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        78(  11.34 %)
```

```
                                  STABILITY WIND ROSE DIAGRAM

                                    C-B SHALE OIL PROJECT
                          LEVEL =  8 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

 STABILITY CLASS - B
                                                            WIND DIRECTION
                          N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW  TOTAL  %
GROUP MAX SPEED          12    10     9     7     6     5     7     8    17    14    16    13     8     9    12    13
     MPH


  GT    24   :                                                                                                       :         0.

 18 -   24   :                                                                                                       :         0.

 12 -   18   :    1                                                 2     4     7     3                 1     1 :   19  4.

  7 -   12   :    8     4     2     2                 1     2     5    12    14     9     3     6    10    14 :   92 20.

  3 -    7   :   21    20     8    11     5     1     7    10    10     4    11     9    13    19    34    30 :  213 45.

  LT     3   :   20    12     9    13     9     7     7    11     4     6     3    10    10     8    11     7 :  147 31.

   TOTAL     :   50    36    19    26    14     8    15    23    21    26    35    31    26    33    56    52 :  471

  PERCENT    :  11.    8.    4.    6.    3.    2.    3.    5.    4.    6.    7.    7.    6.    7.   12.   11. :       100.
                ...........................................................................................................

                         TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -         33(   7.01 %)
```

```
                              STABILITY WIND ROSE DIAGRAM

                                 C-B SHALE OIL PROJECT
                      LEVEL =  8 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - C
                                                           WIND DIRECTION
                     N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL  %
GROUP MAX SPEED     12   11   13   11    6    8   10   14   20   20   17   17   13   14   16   16
    MPH


   GT   24    :                                                                                  :       0.

 18 -   24    :                                              7    7                              :   14  1.

 12 -   18    :      1         2                        3   12   64   54   12    4    5    6    7 :  170 14.

  7 -   12    :     26   13    3    5         1    3   10   25   47   57   30   16   11   30   40 :  317 25.

  3 -    7    :     36   19   19   20   23   14   23   22   19   30   23   24   27   48   76   46 :  469 38.

   LT    3    :     15   11   21   14   29   27   22   17   15   18   15   14   18   19   15    5 :  275 22.

   TOTAL      :     78   43   45   39   52   42   48   52   78  166  149   80   65   83  127   98 : 1245

   PERCENT    :     6.   3.   4.   3.   4.   3.   4.   4.   6.  13.  12.   6.   5.   7.  10.   8. :     100.
                ...........................................................................................

                    TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        50(   4.02 %)
```

```
                                             STABILITY WIND ROSE DIAGRAM

                                                C-B SHALE OIL PROJECT
                                   LEVEL =  8 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - D
                                                           WIND DIRECTION
                    N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW   TOTAL    %
GROUP MAX SPEED    14    12    13    13     8     8    10    16    19    20    21    20    14    14    18    16
     MPH


   GT   24    :                                                                                                  :         0.

   18 - 24    :                                                 6     9     3     5                 1          :    24   1.

   12 - 18    :     6     1     2     1                       2    34    83    48     6     2     4    26     9 :   224   9.

    7 - 12    :    26    17    15     7     1     2    37    24    53    56    57    26    21     8    53    56 :   459  19.

    3 -  7    :    36    21    19    26    38    46    71    86    59    76   146    59    42    50    98    44 :   917  38.

   LT    3    :    21    19    14    33    63    62    77    59    59    97   153    50    31    24    22    13 :   797  33.

    TOTAL     :    89    58    50    67   102   110   185   171   211   321   407   146    96    86   200   122 :  2421

    PERCENT   :    4.    2.    2.    3.    4.    5.    8.    7.    9.   13.   17.    6.    4.    4.    8.    5. :       100.
                ......................................................................................................

                         TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -       137(   5.66 %)
```

```
                                        STABILITY WIND ROSE DIAGRAM

                                           C-B SHALE OIL PROJECT
                              LEVEL =  8 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

 STABILITY CLASS - E
                                                        WIND DIRECTION
                     N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL    %
GROUP MAX SPEED     18   12    7   10    5    4   11    8   21   24   20   16   14   14   17   15
    MPH

      GT   24   :                                                1                               :     1   0.

  18 -     24   :    1                                   7    4    1                             :    13   0.

  12 -     18   :    3    1                              7   15   17    6    4    2   20    9     :    84   3.

   7 -     12   :   29    3    1    2              9    7   48   16   17   16    5    1   40   62 :   256  10.

   3 -      7   :   43    8    9   22   44   46   82   69   81  105  257  105   35   46  109   65 :  1126  43.

      LT    3   :   39   21   15   43   67  100   95   86   65  123  251   72   37   58   45   43 :  1160  44.

     TOTAL      :  115   33   25   67  111  146  186  162  208  264  543  199   81  107  214  179 :  2640

    PERCENT     :   4.   1.   1.   3.   4.   6.   7.   6.   8.  10.  21.   8.   3.   4.   8.   7. :        100.
                 ..............................................................................................

                             TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -       260(   9,85 %)
```

```
                                       STABILITY WIND ROSE DIAGRAM

                                           C-B SHALE OIL PROJECT
                                 LEVEL =  8 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - TOTAL
                                                             WIND DIRECTION
                         N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL   %
GROUP MAX SPEED         18   12   13   13    8    8   11   16   21   24   21   20   14   14   18   16
     MPH

   GT    24    :                                                      1                                :     1  0.

  18 -   24    :         1                                       20   20    4    5                   1      :    51  1.

  12 -   18    :        11    2    4    1                   5   56  166  128   27   10   11   53   27 :   501  7.

   7 -   12    :        94   42   22   16    2    5   50   45  134  141  153   83   45   29  137  181 :  1179 16.

   3 -    7    :       174  100   68   94  120  114  194  195  184  234  466  212  134  193  362  209 :  3053 41.

   LT     3    :       121   87   89  127  195  219  222  194  154  259  432  157  116  132  120   87 :  2711 36.

    TOTAL      :       401  231  183  238  317  338  466  439  548  821 1183  484  305  365  673  504 :  7496

    PERCENT    :        5.   3.   2.   3.   4.   5.   6.   6.   7.  11.  16.   6.   4.   5.   9.   7. :        100.
                     ...........................................................................................

                              TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -      558(   7.44 %)


                                   PERCENTAGE OF A      STABILITY -   9.18 %
                                   PERCENTAGE OF B      STABILITY -   6.28 %
                                   PERCENTAGE OF C      STABILITY -  16.61 %
                                   PERCENTAGE OF D      STABILITY -  32.30 %
                                   PERCENTAGE OF E      STABILITY -  35.22 %
                                   STABILITY WIND ROSE DIAGRAM

                                      C-B SHALE OIL PROJECT
                          LEVEL = 30 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - A
                                                         WIND DIRECTION
                    N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL    %
GROUP MAX SPEED     9   11    8    5    9    8   10    6   22    8   14   10    9    7   10   19
     MPH

  GT    24      :                                                                                 :         0.
  18 -  24      :                                            1                                   1 :     2   0.
  12 -  18      :                                            0         2                         1 :     3   1.
   7 -  12      :    9    3    1         2    1    3         3    2    6    3    5    1    6    6 :    51  13.
   3 -   7      :   25   14   18   17    9    7   10    7   16   13   21   14   13   19   18   14 :   235  58.
  LT     3      :   11    4    6    7    7    8    7    5    4    6    9    6   12   10    9    3 :   114  28.
   TOTAL        :   45   21   25   24   18   16   20   12   24   21   38   23   30   30   33   25 :   405
   PERCENT      :  11.   5.   6.   6.   4.   4.   5.   3.   6.   5.   9.   6.   7.   7.   8.   6. :        100.
                 ...............................................................................................

                          TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        6(   1.48 %)
```

```
                              STABILITY WIND ROSE DIAGRAM

                                C-B SHALE OIL PROJECT
                      LEVEL = 30 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - B
                                                 WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED   10   10    7   10    4    5    8   12   12   13   16    8    6   11   13   15
    MPH

                                                                                              :      0.
  GT   24   :
                                                                                              :      0.
 18 -  24   :
                                                   1    2    3    1                   1    1  :    9  3.
 12 -  18   :
  7 -  12   :      8    7    1    1              3    3    3    5    7    2        10   14    9  :   73 28.
  3 -   7   :     18   11    4    7    5    5    3    5    5    7    4    6    7   17   22    9  :  135 51.
  LT    3   :      6    4    1    0   10    2    5    1    1    2    2    1    1    4    4    2  :   46 17.
   TOTAL    :     32   22    6    8   15    7   11   10   11   17   14    9    8   31   41   21  /  263
   PERCENT  :    12.   8.   2.   3.   6.   3.   4.   4.   4.   6.   5.   3.   3.  12.  16.   8.  :     100.
             .............................................................................................
                 TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -          4(   1.52 %)
```

```
                                  STABILITY WIND ROSE DIAGRAM

                                     C-B SHALE OIL PROJECT
                         LEVEL = 30 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - C
                                                     WIND DIRECTION
                      N   NNE   NE   ENE    E   ESE   SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW   TOTAL  %
GROUP MAX SPEED      16    15   13    10    5     8   10    15   20    22   20    14   12    16   16    18
     MPH

                                                                                                         :        0.
   GT   24   :
                                                                  1     6    6                            1 :   14  2.
 18 -   24   :
                                                             3    6    26   17     4    1     4    6     5 :   85 12.
 12 -   18   :    8     4    1
  7 -   12   :   24     4    6     3          2    6    9   11    25   30     7   11    12   36    23 :  209 31.
  3 -    7   :   31    17   11    13   11    12   17   16    8     9   11    13   17    28   40    27 :  281 41.
  LT     3   :    9     9    7     7    9    11    5    3   10     4    2     2    2     6    4     3 :   93 14.
   TOTAL     :   72    34   25    23   20    25   28   31   36    70   66    26   31    50   86    59 :  682
   PERCENT   :  11.    5.   4.    3.   3.    4.   4.   5.   5.   10.  10.    4.   5.    7.  13.    9. :      100.
              ......................................................................................................

                     TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -          4(   0.59 %)
```

```
                                STABILITY WIND ROSE DIAGRAM

                                   C-B SHALE OIL PROJECT
                        LEVEL = 30 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - D
                                                  WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL   %
GROUP MAX SPEED   15   15   14   10   10   13   15   25   28   25   22   22   18   19   22   20
     MPH

   GT   24    :                                       1    4    2                                  :    7  0.

   18 - 24    :                                       2   30   41   16    4    1    5   11    5    :  115  7.

   12 - 18    :   15    6    3              1    4   10   40   95   52   26    8   12   39   23    :  334 19.

    7 - 12    :   20   11   12    7    8    8   22   23   36   61   50   37   16   41   87   59    :  498 28.

    3 -  7    :   21   18   15   31   39   37   36   31   27   55   63   37   57   61   59   24    :  611 35.

   LT    3    :    8   12    7   15   10   14   16   15   14   13   18   19   12    9    4    2    :  188 11.

    TOTAL     :   64   47   37   53   57   60   78   82  151  267  199  123   94  128  200  113    ; 1753

    PERCENT   :   4.   3.   2.   3.   3.   3.   4.   5.   9.  15.  11.   7.   5.   7.  11.   6.    :       100.
              ..........................................................................................

                    TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -         11(   0.63 %)
```

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                              STABILITY WIND ROSE DIAGRAM

                                C-B SHALE OIL PROJECT
                     LEVEL = 30 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - E
                                                      WIND DIRECTION
                     N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED     23   17   17   12   12   14   17   23   26   26   26   23   17   19   22   18
     MPH

   GT    24   :                                             7    4    1                            :   12  0.
 18 -    24   :      2                                 4   25   36   19    5         9   24    1 :  125  3.
 12 -    18   :     23    7    8    2    1    2   20   23   62   55   37   25    7   10   49   35 :  366 10.
  7 -    12   :     60   15   15    8   16   18   74  101  117  145   68   35   19   54  128   80 :  953 25.
  3 -     7   :     53   26   31   63  191  167  151  141  116  200  284   97  104  110  100   46 : 1882 49.
  LT      3   :     16   11   11    7   29   31   40   47   44   58   71   37   27   13   18   20 :  480 13.
    TOTAL     :    154   59   65   80  237  218  285  316  371  498  480  199  157  196  319  184 ; 3818
   PERCENT    :     4.   2.   2.   2.   6.   6.   7.   8.  10.  13.  13.   5.   4.   5.   8.   5. :      100.
                ..........................................................................................

                     TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        25(   0.65 %)
```

```
                              STABILITY WIND ROSE DIAGRAM

                                  C-B SHALE OIL PROJECT
                       LEVEL = 30 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

 STABILITY CLASS - TOTAL
                                                     WIND DIRECTION
                      N   NNE   NE   ENE    E   ESE   SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW  TOTAL  %
GROUP MAX SPEED      23    17   17    12   12    14   17    25   28    26   26    23   18    19   22    20
    MPH


    GT   24    :                                           1   11     6    1                                :   19  0.

  18 -   24    :      2                                     6   57    83   41     9    1    14   35     8 :  256  4.

  12 -   18    :     46    17   12     2    1     3   24    37  110   179  109    55   16    26   95    65 :  797 11.

   7 -   12    :    121    40   35    19   26    29  108   136  170   238  161    84   51   118  271   177 : 1784 26.

   3 -    7    :    148    86   79   131  255   228  217   200  172   284  383   167  198   235  239   122 : 3144 45.

    LT    3    :     52    41   33    38   66    67   74    73   75    85  103    66   56    44   41    31 :  945 14.

     TOTAL     :    369   184  159   190  348   327  423   453  595   875  798   381  322   437  681   403 ; 6945

    PERCENT    :     5.    3.   2.    3.   5.    5.   6.    7.   9.   13.  11.    5.   5.    6.  10.    6. :      100.
                 ..........................................................................................

                       TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        50(   0.72 %)


                            PERCENTAGE OF A      STABILITY -   5.83 %
                            PERCENTAGE OF B      STABILITY -   3.79 %
                            PERCENTAGE OF C      STABILITY -   9.82 %
                            PERCENTAGE OF D      STABILITY -  25.24 %
                            PERCENTAGE OF E      STABILITY -  54.97 %
```

```
                                   STABILITY WIND ROSE DIAGRAM

                                      C-B SHALE OIL PROJECT
                          LEVEL =100 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - A
                                                      WIND DIRECTION
                        N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL  %
GROUP MAX SPEED         9    9    6   12    5    9    9   11   10    8   15   11    6    7   13    9
    MPH

                                                                                                    :        0.
   GT    24    :
                                                                                                    :        0.
 18 -    24    :
                                                                                                    :     3  1.
 12 -    18    :                    1                                  1                        1
                                                                                                    :    32  9.
  7 -    12    :        4    3           0         1    3    1    3    4    6    2         1    1    3
                                                                                                    :   179 48.
  3 -     7    :       22    6   11    9    7    9    9   12   14   10   14    7   12   11   13   13
                                                                                                    :   160 43.
  LT      3    :       11   10    8   11   13   11   14   12   10   10    7    4    9   13   13    4
                                                                                                    :   374
   TOTAL       :       37   19   19   21   20   21   26   25   27   24   28   13   21   25   28   20
                                                                                                    :      100.
   PERCENT     :      10.   5.   5.   6.   5.   6.   7.   7.   7.   6.   7.   3.   6.   7.   7.   5.
                  ...........................................................................................

                           TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        12(   3.21 %)
```

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                                  STABILITY WIND ROSE DIAGRAM

                                    C-B SHALE OIL PROJECT
                         LEVEL =100 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

 STABILITY CLASS - B
                                                     WIND DIRECTION
                       N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED       15   11    7    7    7    9    9   12   12   13   14    9    8   16   13   22
    MPH


   GT    24    :                                                                                   :       0.

  18 -   24    :                                                                                 1 :     1 0.

  12 -   18    :       1                                  1    1    4    1              1    1    0 :    10 3.

   7 -   12    :       8    2    1    1    1    1    4    0    3    3    6    2    2    3   13   11 :    61 21.

   3 -    7    :      14   13    5    7   10   10   11    6    8    4   10    6    5   15   16   13 :   153 53.

   LT     3    :       8    7    4    3    3    3    7    0    2    4    2    5    0    2    9    3 :    62 22.

    TOTAL      :      31   22   10   11   14   14   22    7   14   15   19   13    7   21   39   28 :   287

   PERCENT     :     11.   8.   3.   4.   5.   5.   8.   2.   5.   5.   7.   5.   2.   7.  14.  10. :      100.
                   ...........................................................................................

                         TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        5(   1.74 %)
```

```
                                    STABILITY WIND ROSE DIAGRAM

                                     C-B SHALE OIL PROJECT
                          LEVEL =100 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - C
                                                         WIND DIRECTION
                      N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL  %
GROUP MAX SPEED      17   15   10    9    7    9   12   11   26   21   22   18   16   13   17   16
    MPH

   GT   24    :                                              2                                   :    2   0.
 18 -   24    :                                              3    5    3    1                    :   12   2.
 12 -   18    :       5    3                    1            10   17   21    2    2    1   10    6 :   78  12.
  7 -   12    :      17    6    3    5    1    2    0    9    8   13   17   10    8   10   39   18 :  166  26.
  3 -    7    :      30   20   12   16   14   23   13   11   11    8    6    9   11   19   25   18 :  246  39.
   LT    3    :       6   13    7    6    7    8    6    7    3    2    9   13   16   10   11    3 :  127  20.
    TOTAL     :      58   42   22   27   22   33   20   27   37   45   56   35   37   40   85   45 :  631
   PERCENT    :      9.   7.   3.   4.   3.   5.   3.   4.   6.   7.   9.   6.   6.   6.  13.   7. :       100.
                 ...........................................................................................

                     TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        8(   1.27 %)
```

```
                              STABILITY WIND ROSE DIAGRAM

                                 C-B SHALE OIL PROJECT
                        LEVEL =100 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

 STABILITY CLASS - D
                                                            WIND DIRECTION
                         N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED         20   17   15   13   12   12   12   23   31   32   24   23   21   21   26   23
     MPH


    GT   24    :                                              12   17    1                   2      :   32  2.

  18 -   24    :         2                               1   27   59   29    8    2    6   12    9 :  155  9.

  12 -   18    :        16    9    4    1    1    1    2   17   24   69   37   18    6    6   31   25 :  267 16.

   7 -   12    :        33   16   11    5    4   12   16   21   23   49   32   33   21   49   90   64 :  479 29.

   3 -    7    :        24   13   14   26   35   37   44   25   22   19   28   30   58   66   53   20 :  514 31.

    LT    3    :        11   10    6    7   16    9   12   19   12    9   12   14   27    9   10    3 :  186 11.

     TOTAL     :        86   48   35   39   56   59   74   83  120  222  139  103  114  136  198  121 / 1633

    PERCENT    :        5.   3.   2.   2.   3.   4.   5.   5.   7.  14.   9.   6.   7.   8.  12.   7. :      100.
                ..........................................................................................

                        TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        19(   1.16 %)
```

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                              STABILITY WIND ROSE DIAGRAM

                                 C-B SHALE OIL PROJECT
                      LEVEL =100 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - E                                     WIND DIRECTION
                       N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL   %
GROUP MAX SPEED       28   20   18   21   15   16   20   24   30   29   30   27   20   22   26   24
    MPH

  GT   24      :       1                                    1   22   16   10    6              6    4 :    66  2.
  18 - 24      :       4    3    2    1              1    9   38   65   33    9    6   13   23   12 :   219  6.
  12 - 18      :      39   13    9    4    4    8   72   34  139   83   58   37   11   11   68   60 :   650 17.
   7 - 12      :      83   24   23   20   30   64  110  132  104  147   61   66   43   69  159  114 :  1249 32.
   3 -  7      :      39   22   25   40  107  154  164   91   50   46   60  108   94  101  103   59 :  1263 32.
  LT    3      :      32   17   22   31   32   40   41   40   35   38   33   28   26   18   25   27 :   485 12.
   TOTAL       :     198   79   81   96  173  266  388  307  388  395  255  254  180  212  384  276 :  3932
  PERCENT      :      5.   2.   2.   2.   4.   7.  10.   8.  10.  10.   6.   6.   5.   5.  10.   7. :      100.
                  ..........................................................................................
                        TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -      55(   1.40 %)
```

STABILITY WIND ROSE DIAGRAM

C-B SHALE OIL PROJECT
LEVEL =100 FEET PERIOD(4/ 1/77 TO 4/30/77)

STABILITY CLASS - TOTAL

WIND DIRECTION

GROUP MAX SPEED MPH		N 28	NNE 20	NE 18	ENE 21	E 15	ESE 16	SE 20	SSE 24	S 31	SSW 32	SW 30	WSW 27	W 21	WNW 22	NW 26	NNW 24		TOTAL	%
GT 24	:	1							1	36	33	11	6			8	4	:	100	1.
18 - 24	:	6	3	2	1			1	10	68	129	65	18	8	19	35	22	:	387	6.
12 - 18	:	61	25	13	6	5	9	75	52	174	173	118	57	19	19	111	91	:	1008	15.
7 - 12	:	145	51	38	31	36	80	133	163	141	216	122	113	74	132	302	210	:	1987	29.
3 - 7	:	129	74	67	98	173	233	241	145	105	87	118	160	180	212	210	123	:	2355	34.
LT 3	:	70	59	49	60	73	72	82	79	64	65	65	65	80	54	71	42	:	1050	15.
TOTAL	:	412	212	169	196	287	394	532	450	588	703	499	419	361	436	737	492	:	6887	
PERCENT	:	6.	3.	2.	3.	4.	6.	8.	7.	9.	10.	7.	6.	5.	6.	11.	7.	:		100.

TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE - 99(1.44 %)

PERCENTAGE OF A STABILITY - 5.43 %
PERCENTAGE OF B STABILITY - 4.17 %
PERCENTAGE OF C STABILITY - 9.16 %
PERCENTAGE OF D STABILITY - 23.71 %
PERCENTAGE OF E STABILITY - 57.09 %

```
                                  STABILITY WIND ROSE DIAGRAM

                                     C-B SHALE OIL PROJECT
                          LEVEL =200 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

 STABILITY CLASS - A
                                                               WIND DIRECTION
                            N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED            10    8   13    7    8    8    7   10   11   27   11    9    7   12   11    9
     MPH


    GT   24     :                                                    1                                 :    1  0.

 18 -    24     :                                                    0                                 :    0  0.

 12 -    18     :                 1                                  0                   1             :    2  0.

  7 -    12     :   2    1    3    1    1    1    1    2    2    2    7    2    1    1    1    1 :   29  7.

  3 -     7     :  10   13    8   10    9   10    7   14   14   19   20   11   10   13   20   19 :  207 47.

    LT    3     :  15   13   13   13    4   13   13   12   21   16    6    6   14   12   17   17 :  205 46.

     TOTAL      :  27   27   25   24   14   24   21   28   37   38   33   19   25   27   38   37 :  444

   PERCENT      :  6.   6.   6.   5.   3.   5.   5.   6.   8.   9.   7.   4.   6.   6.   9.   8. :     100.
                .......................................................................................

                      TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        42(   9.46 %)
```

```
                                       STABILITY WIND ROSE DIAGRAM

                                         C-B SHALE OIL PROJECT
                               LEVEL =200 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

 STABILITY CLASS - B
                                                       WIND DIRECTION
                       N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED       10    6    6   12    8    4    9   11    5   13   15   16   11   13   10   22
    MPH


    GT   24   :                                                                                  :        0.

  18 -   24   :                                                                                1 :     1  0.

  12 -   18   :                    1                                1    3    2         1        0 :     8  3.

   7 -   12   :   5                0    1         3    5            1    5    4    4    1    6   8 :    43 18.

   3 -    7   :   8    8    6      3    4    5    5    7    9   15    8    8    5    7   14   15 :   127 52.

    LT    3   :   4    5    2      1    5    0    1    7    7    4    4    5    2    7    7    4 :    65 27.

    TOTAL     :  17   13    8      5   10    5    9   19   16   21   20   19   11   16   27   28 :   244

   PERCENT    :   7.   5.   3.     2.   4.   2.   4.   8.   7.   9.   8.   8.   5.   7.  11.  11. :       100.
              ..........................................................................................

                        TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        13(   5.33 %)
```

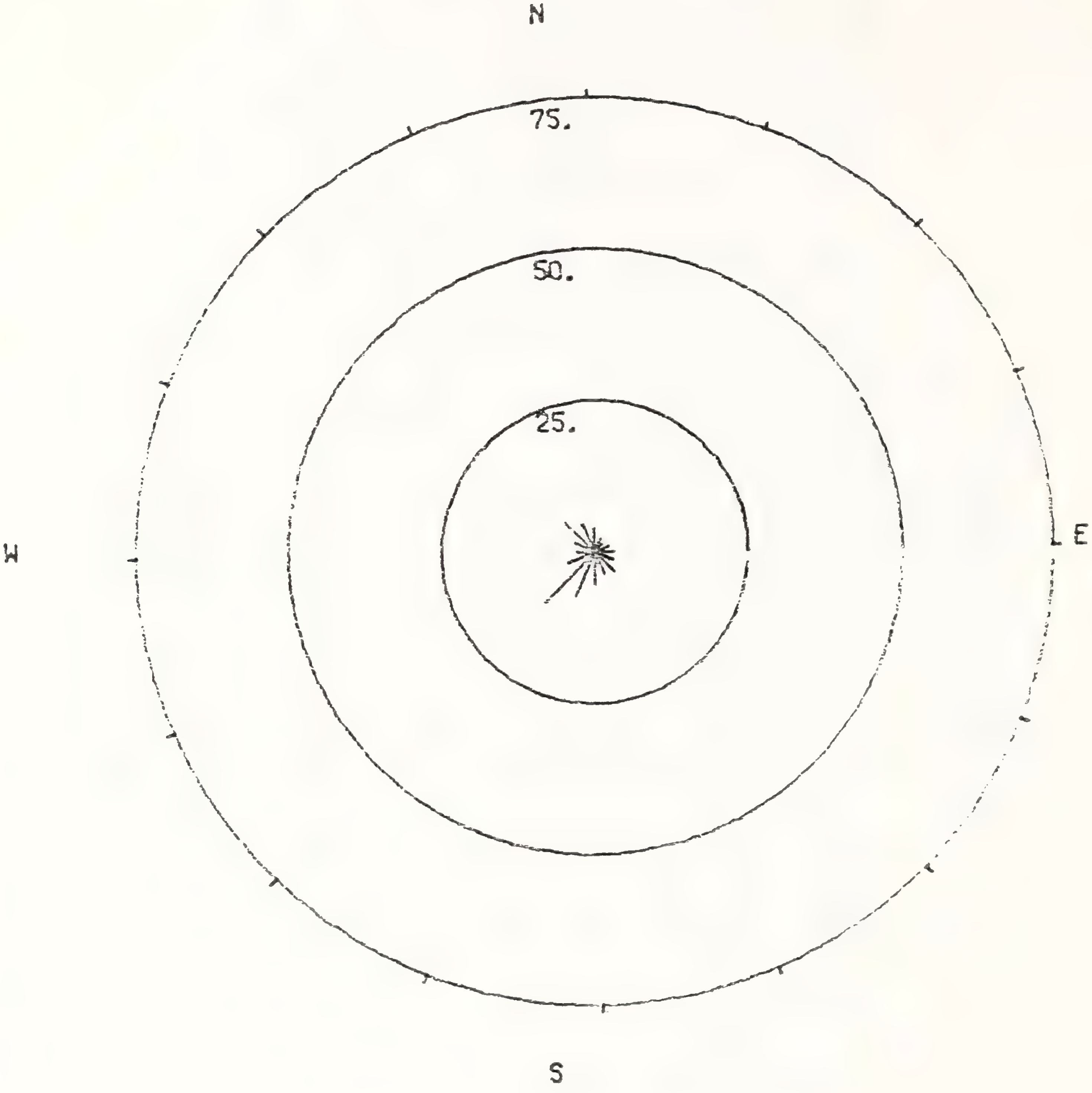
```
                                    STABILITY WIND ROSE DIAGRAM

                                        C-B SHALE OIL PROJECT
                              LEVEL =200 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - C
                                                         WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED   16   14   10    9    6    5   10   14   15   19   21   21   18   14   17   16
    MPH

  GT   24    :                                                                                  :       0.

 18 -  24    :                                                  2    9    2    1                :   14  2.

 12 -  18    :     5.   1                                  3    5   18   14    3    1    1    5    6 :   62 11.

  7 -  12    :    16    6    6    4                   4    4    5   18   14   12    8    9   28   24 :  158 27.

  3 -   7    :    26   11    7    5   15   11   10   10   16   18   11    9   12   24   31   30 :  246 42.

  LT    3    :     7    9   10    6    5    3    1    7    8    4    2    4    7    8   14    5 :  100 17.

   TOTAL     :    54   27   23   15   20   14   15   24   34   60   50   30   29   42   78   65 ;  580

   PERCENT   :    9.   5.   4.   3.   3.   2.   3.   4.   6.  10.   9.   5.   5.   7.  13.  11. :      100.
             ...........................................................................................

                   TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -       19(   3.28 %)
```

RADIAN CORPORATION

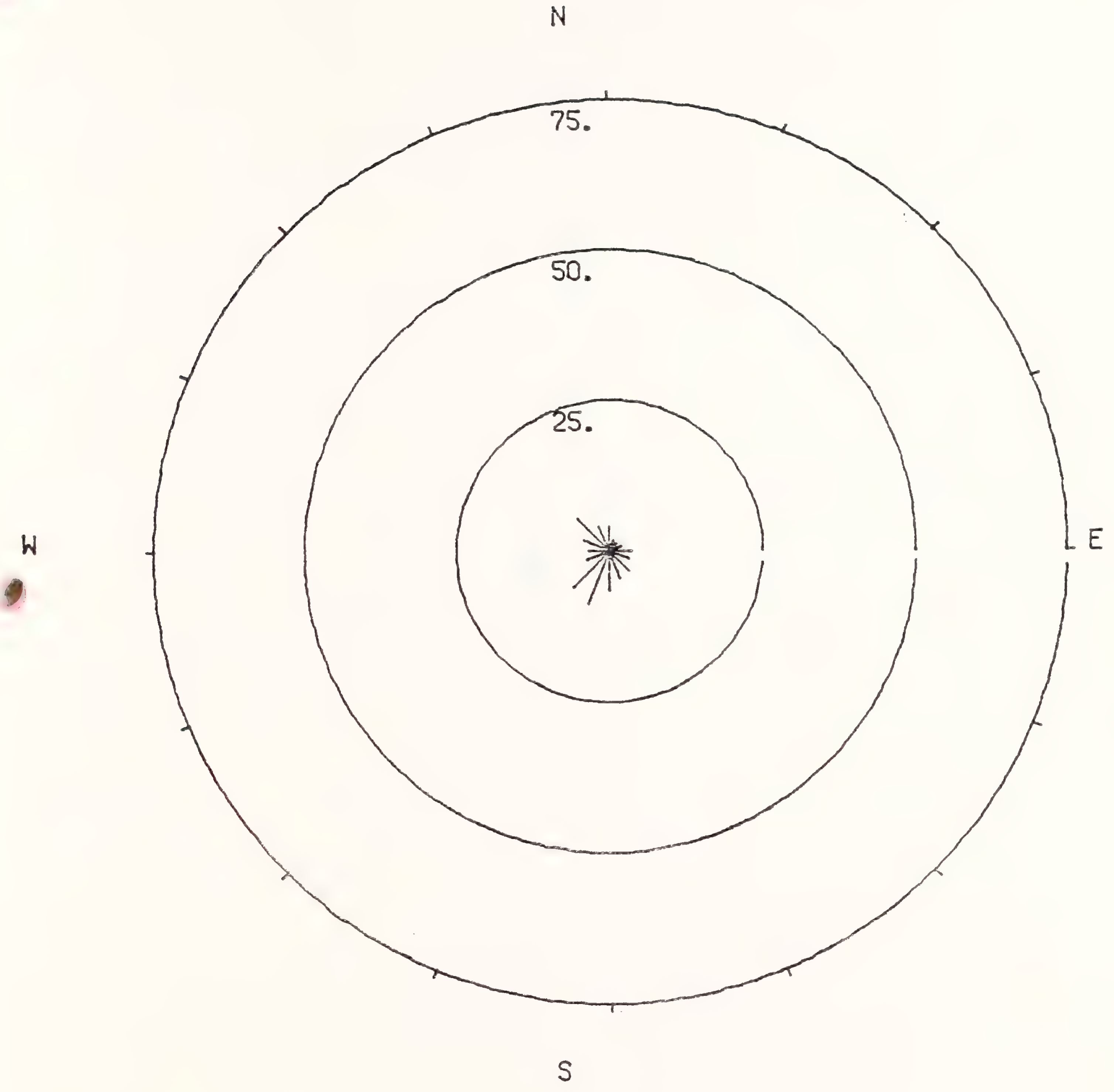
```
                                  STABILITY WIND ROSE DIAGRAM

                                     C-B SHALE OIL PROJECT
                           LEVEL =200 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

 STABILITY CLASS - D
                                                         WIND DIRECTION
                       N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL    %
GROUP MAX SPEED       17   16   17   10   13   14   15   19   28   32   28   27   23   21   29   22
    MPH


   GT   24       :                                            8   29    9    4                   3       :   53   3.

  18 -  24       :                                       1    8   51   45   10    2    6   16    8 :  147   9.

  12 -  18       :   22    4    5         3    1    1    8   21   50   48   31   18    6   35   32 :  285  18.

   7 -  12       :   42   12   16    8    5    3   14   17   24   42   43   39   24   38  105   75 :  507  32.

   3 -   7       :   38   14    8   15   13   21   27   24   23   19   18   19   43   45   41   32 :  400  26.

   LT    3       :   10    3    1   11   11    7   13    7   11    7   11   12   18   21   18   14 :  175  11.

    TOTAL        :  112   33   30   34   32   32   55   57   95  198  174  115  105  116  218  161 : 1567

   PERCENT       :   7.   2.   2.   2.   2.   2.   4.   4.   6.  13.  11.   7.   7.   7.  14.  10. :       100.
                 ..........................................................................................

                           TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -       31(   1.98 %)
```

```
                                       STABILITY WIND ROSE DIAGRAM

                                          C-B SHALE OIL PROJECT
                                LEVEL =200 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

STABILITY CLASS - E
                                                         WIND DIRECTION
                        N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW   TOTAL  %
GROUP MAX SPEED        29    20    22    22    17    18    19    25    32    32    33    29    22    22    29    28
    MPH


   GT   24    :     2                                         1    14    41    17     4                  10     8 :   97  2.

 18 -   24    :    11     5     3     4           1    12    15    36    77    75    20     6     6    29    19 :  319  8.

 12 -   18    :    56    25    13     9     4     9    42    46   126   108   132    44    22     8    52    83 :  779 20.

  7 -   12    :    99    31    37    22    17    41    99    99    71    87    79    43    44    74   170   129 : 1142 29.

  3 -    7    :    68    20    25    17    36    98   186   102    62    34    34    33    83   102   118    59 : 1077 27.

   LT    3    :    34    19    27    28    23    39    48    33    34    19    37    23    30    41    35    38 :  508 13.

    TOTAL     :   270   100   105    80    80   188   387   296   343   366   374   167   185   231   414   336 ; 3922

   PERCENT    :    7.    3.    3.    2.    2.    5.   10.    8.    9.    9.   10.    4.    5.    6.   11.    9. :      100.
              ......................................................................................................

                    TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        117(   2.98 %)
```

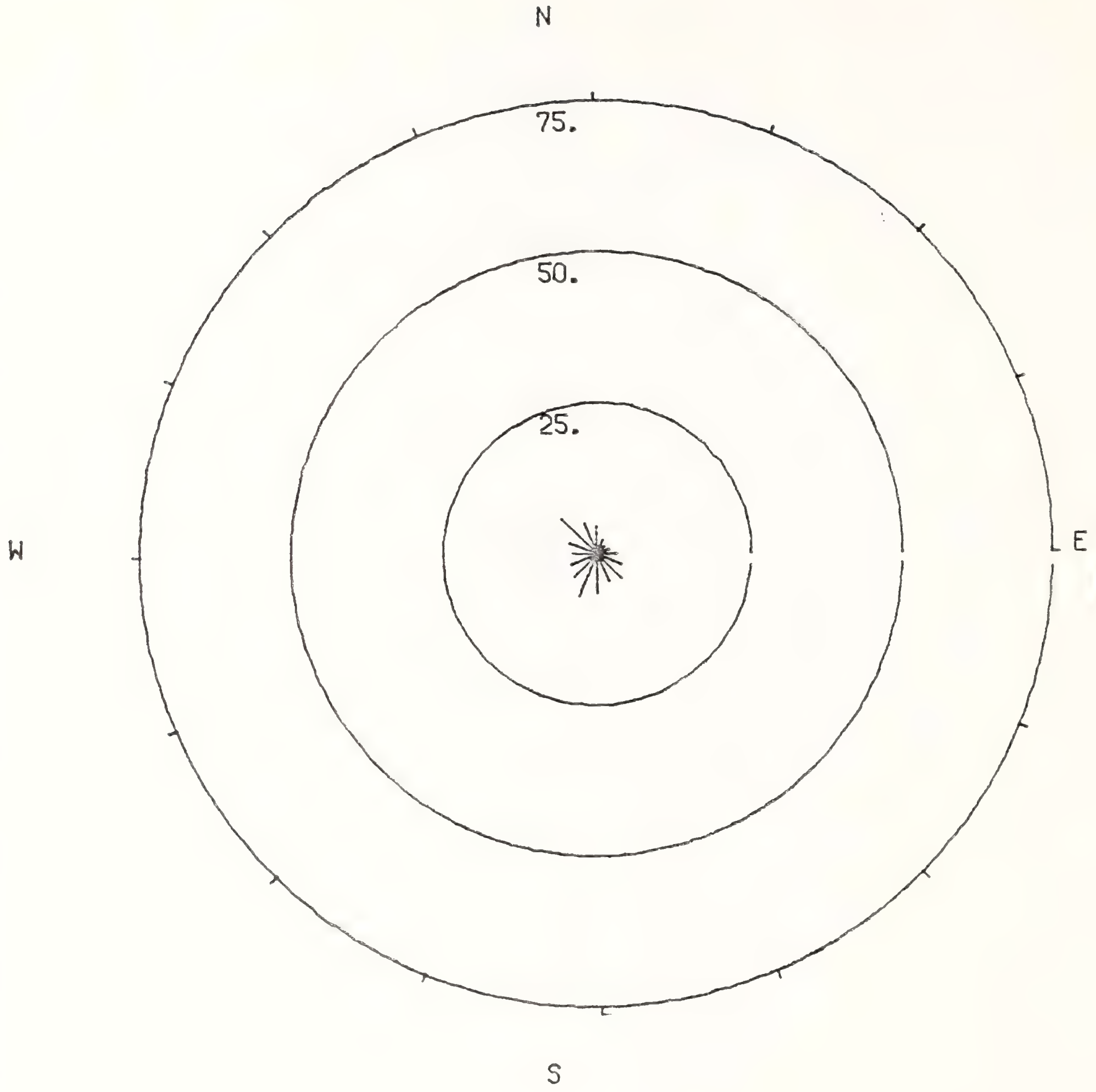
```
                              STABILITY WIND ROSE DIAGRAM

                                 C-B SHALE OIL PROJECT
                        LEVEL =200 FEET  PERIOD( 4/ 1/77 TO  4/30/77)

 STABILITY CLASS - TOTAL
                                                           WIND DIRECTION
                       N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL   %
GROUP MAX SPEED       29   20   22   22   17   18   19   25   32   32   33   29   23   22   29   28
     MPH


   GT   24     :       2                                  1   22   71   26    8              13    8 :  151  2.

  18 -  24     :      11    5    3    4         1   12   16   44  130  129   32    9   12   45   28 :  481  7.

  12 -  18     :      83   30   19   10    7   10   43   57  152  177  197   80   41   17   92  121 : 1136 17.

   7 -  12     :     164   50   62   35   24   45  121  127  102  150  148  100   81  123  310  237 : 1879 28.

   3 -   7     :     150   66   54   50   77  145  235  157  124  105   91   80  153  191  224  155 : 2057 30.

   LT    3     :      73   52   55   60   49   63   76   69   82   52   62   53   72   93   93   80 : 1084 16.

    TOTAL      :     483  203  193  159  157  264  487  427  526  685  653  353  356  436  777  629 : 6788

   PERCENT     :      7.   3.   3.   2.   2.   4.   7.   6.   8.  10.  10.   5.   5.   6.  11.   9. :      100.
                     ....................................................................................

                            TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        222(   3.27 %)


                                  PERCENTAGE OF A      STABILITY -   6.54 %
                                  PERCENTAGE OF B      STABILITY -   3.59 %
                                  PERCENTAGE OF C      STABILITY -   8.54 %
                                  PERCENTAGE OF D      STABILITY -  23.08 %
                                  PERCENTAGE OF E      STABILITY -  57.78 %
```



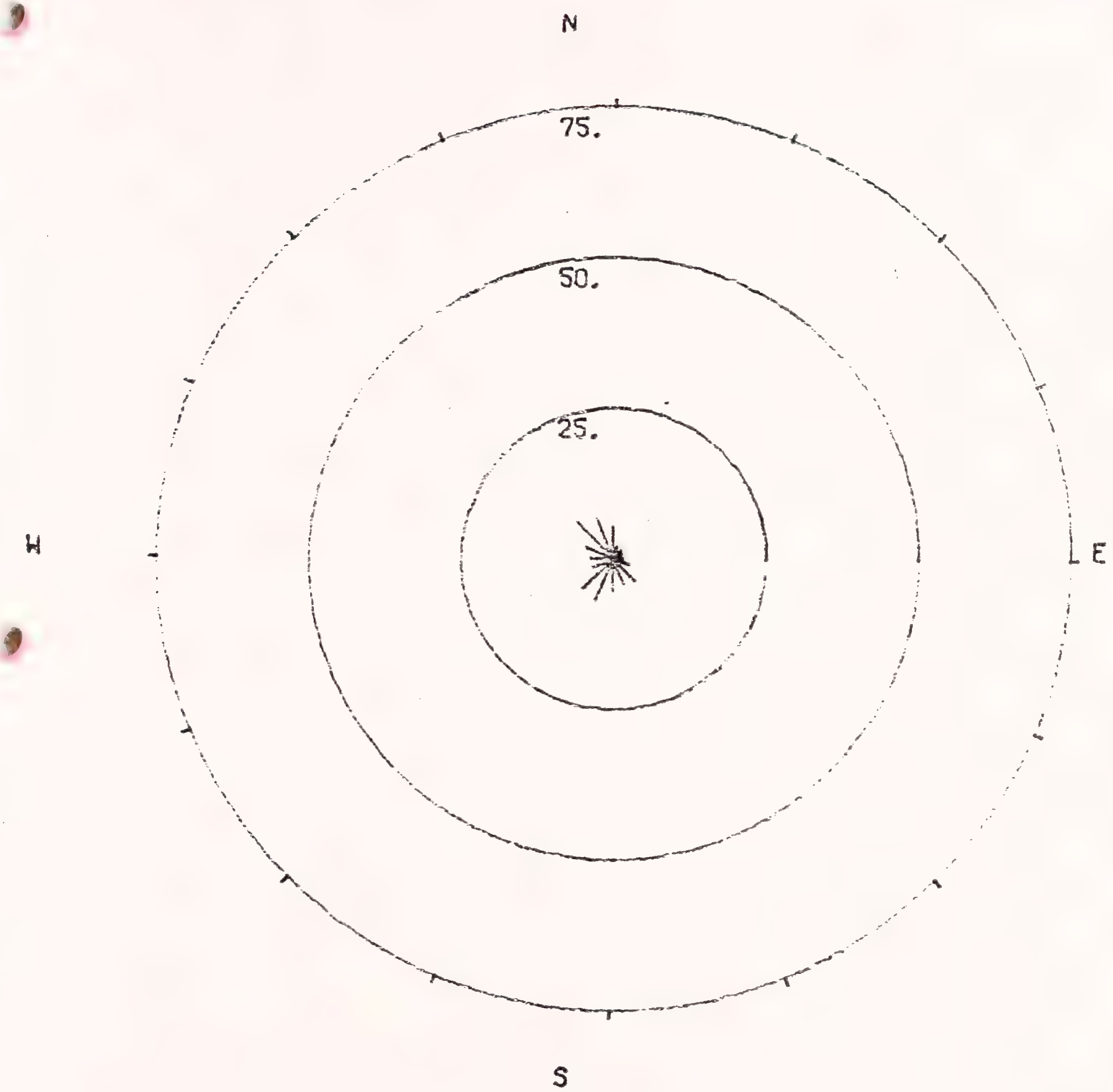
PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 8 FOOT LEVEL



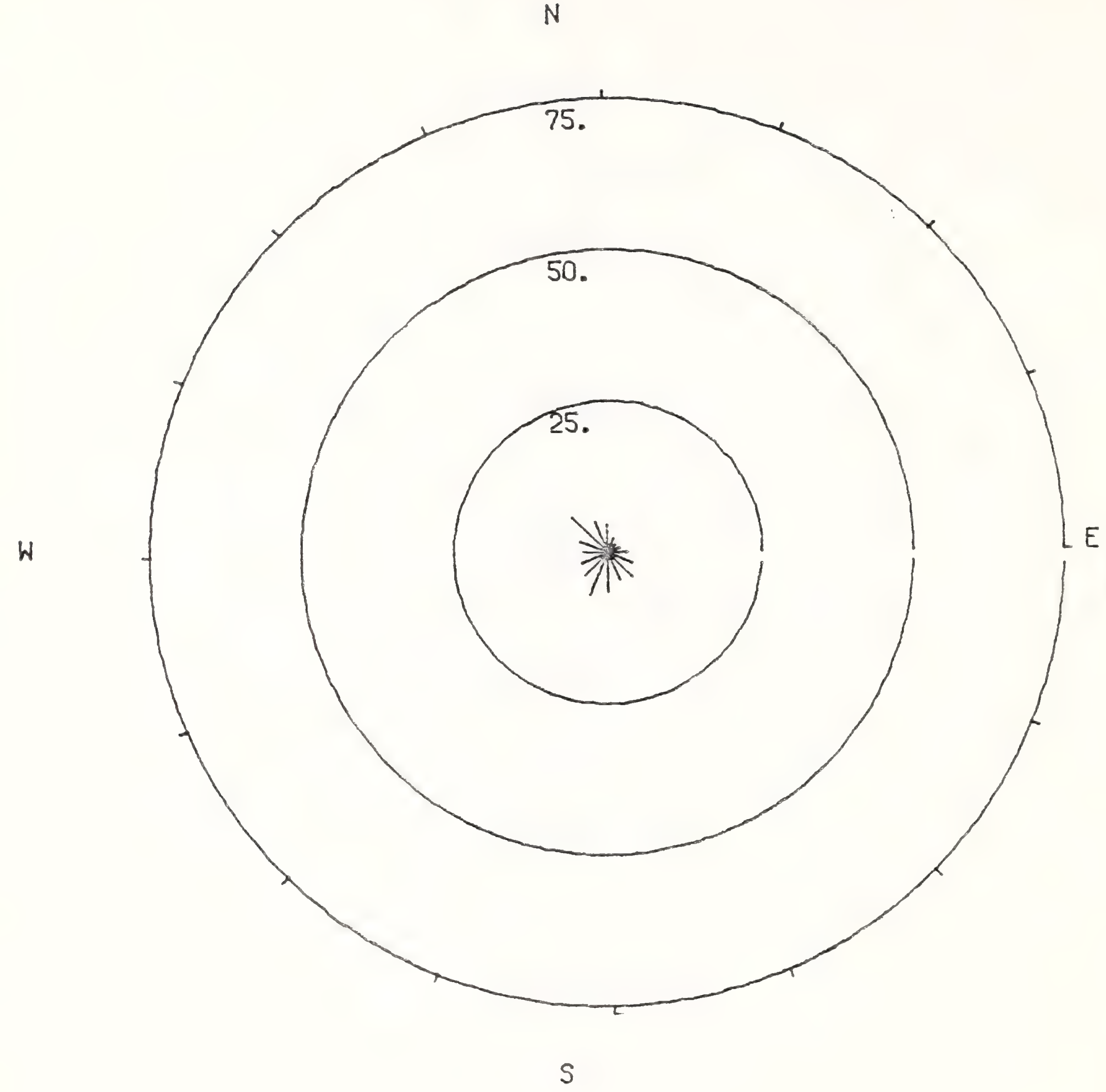
PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 30 FOOT LEVEL



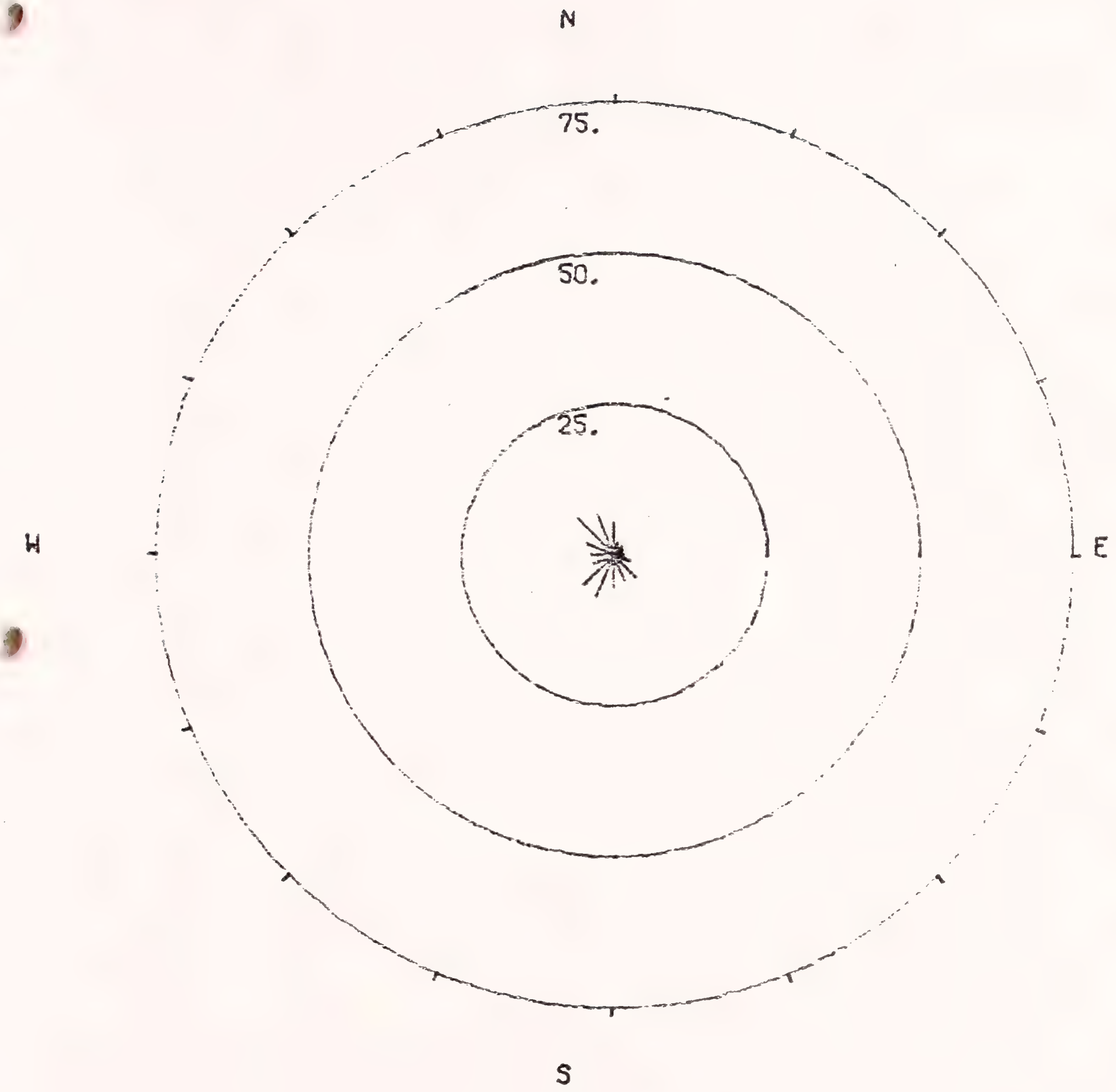
PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 100 FOOT LEVEL



PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 200 FOOT LEVEL



PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 100 FOOT LEVEL



PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 200 FOOT LEVEL

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RADIAN REPORT -

RADIAN
CORPORATION

DCN 77-100-152-04

AIR MONITORING REPORT
FOR
C-b SHALE OIL PROJECT
MAY 1977
Report No. 33

22 July 1977

Presented to:
C-b Shale Oil Project
United Bank Tower
Denver, Colorado 80202

Prepared by:
Radian Staff

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Sulfur Dioxide (SO_2) -1589
Pyranometer -1589
Sulfur Dioxide (SO_2) -1589
Total Hydrocarbons -1590
Methane -1590
Non-Methane Hydrocarbons -1590
Carbon Monoxide -1591
Ozone -1591
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Nitrogen Dioxide----------------------------- -1613
Sulfur Dioxide------------------------------- -1614
Total Hydrocarbons------------------------- -1615
Methane-------------------------------------- -1616
Non-Methane Hydrocarbons------------------ -1617
Carbon Monoxide---------------------------- -1618
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Nitrogen Oxides (NO_x)---------------------- -1623
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Sulfur Dioxide (SO_2)---------------------- -1626
Sulfur Dioxide (SO_2)---------------------- -1627
Total Hydrocarbons------------------------- -1628
Methane-------------------------------------- -1629
Non-Methane Hydrocarbons------------------ -1630
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Total Hydrocarbons------------------------- -1639
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Class D------------ -1734
Class E------------ -1735
Total-------------- -1736
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Total-------------- -1742
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Class D------------ -1746
Class E------------ -1747
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I. GENERAL DESCRIPTION OF AIR MONITORING PROGRAM

Radian Corporation, under contract to the C-b Oil Shale Project, is performing the data compilation and reporting of air quality and meteorological data at one monitoring site in Northwest Colorado. The site measures and records concentrations of particulates, sulfur dioxide, oxides of nitrogen, hydrogen sulfide, total hydrocarbons, methane, and carbon monoxide. A 200-foot meteorological tower provides wind direction, wind speed, temperature, and relative humidity data at four levels (8, 30, 100, and 200 feet). Other meteorological variables measured at the tower site are insolation, barometric pressure, and precipitation.

Figure I shows the configuration of the monitoring station. The station provides a sturdy and protective covering for the monitoring equipment.

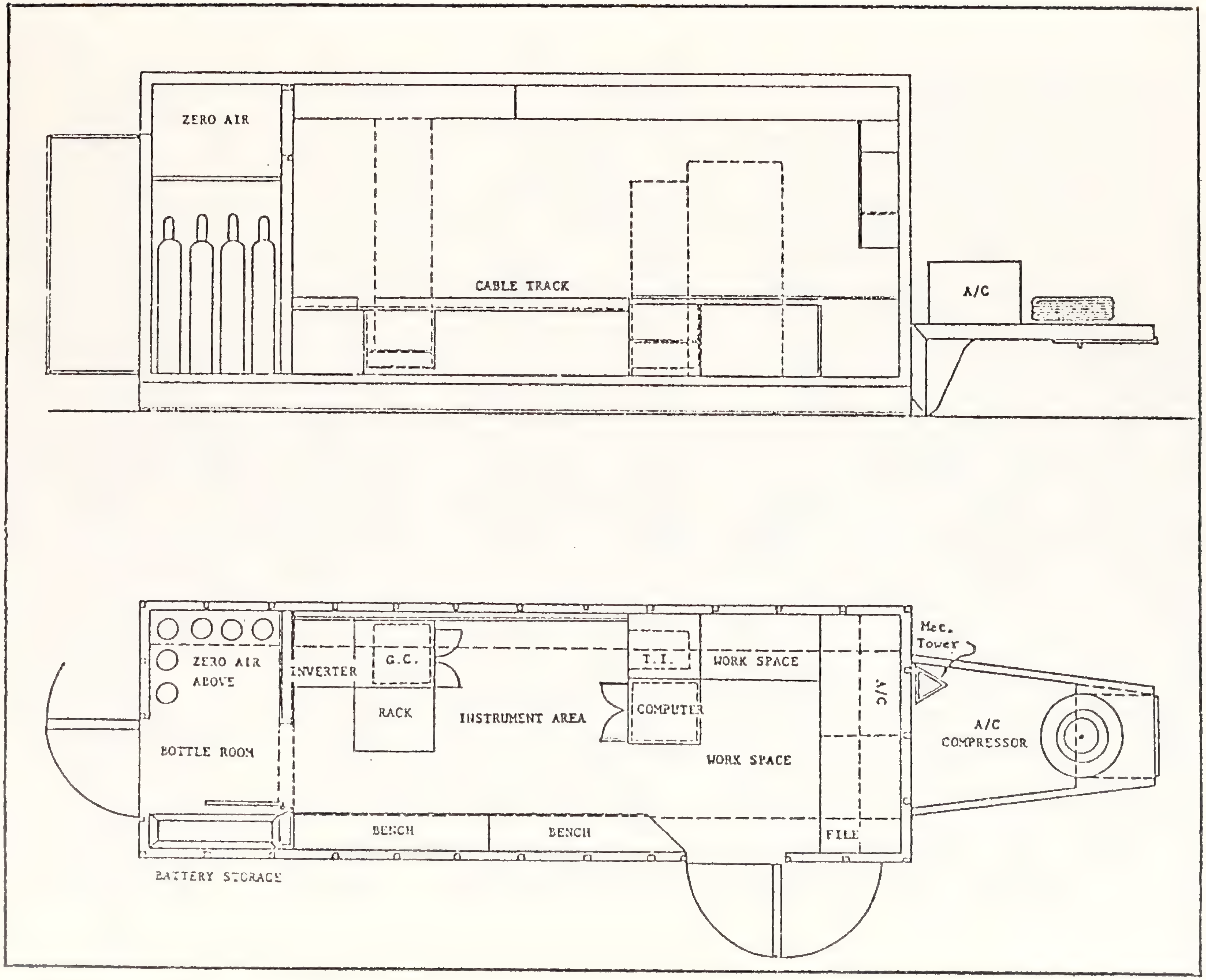
ZERO AIR
CABLE TRACK
A/C
ZERO AIR ABOVE
BOTTLE ROOM
BATTERY STORAGE
INVERTER
G.C.
RACK
INSTRUMENT AREA
BENCH
BENCH
T.I.
COMPUTER
WORK SPACE
WORK SPACE
FILE
A/C
Met. Tower
A/C COMPRESSOR

FIGURE I. CONFIGURATION OF MONITORING STATION

II. DESCRIPTION OF INSTRUMENT SYSTEMS

A. Air Quality Instrumentation

Nitrogen oxides are measured with a Meloy Model NA520 analyzer. This dual-channel analyzer is based on the chemiluminescent principle and continuously monitors both NO_x and NO. A subtraction circuit in the instrument provides a continuous NO_2 output, but is not used in Radian's system. NO_2 is calculated once a second by the computer by subtracting the NO value from the NO_x value, thus avoiding any drift which might occur in the NO_2 output of the instrument. This instrument has a minimum detectable sensitivity of 5 ppb (parts per billion) and a linearity of ±1%.

Both sulfur dioxide and hydrogen sulfide are measured with Meloy Model SA185 sulfur analyzers. The hydrogen sulfide analyzer uses a Meloy Model NO_x-1 sulfur dioxide scrubber and the sulfur dioxide analyzer uses a Meloy Model H_2S-1 hydrogen sulfide scrubber. The Model SA185 is a continuous analyzer and utilizes the flame photometric principle of operation. The minimum detectable sensitivity is 5 ppb and the linearity is ±1%.

Ozone is measured with a Meloy Model OA350 analyzer. This instrument, based on the chemiluminescent principle, provides continuous measurement of ozone. The minimum detectable sensitivity is 0.5 ppb and the linearity is ±1%.

Total hydrocarbons, methane, and carbon monoxide are monitored with a Bendix Model 8200 gas chromatograph analyzer. This instrument, which uses a plume ionization detector, has a minimum detectable sensitivity of 5 ppb for all three components. The Model 8200 works on a five-minute cycle, i.e., one air sample is analyzed every five minutes, and the results are displayed for five minutes via a sample and hold circuit.

The air sample is drawn in through a glass cane and manifold supplied by the Ace Glass Company. The system has a 25mm diameter, through which a constant air flow is provided by an air pump rated at 60 cfm at 0" head pressure. The manifold has sampling ports to which 1/4" teflon lines to the instrument are connected. All joints in the sampling system are secured by O-ring compression fittings. The manifold is contained in a heated (100°F) chamber to prevent condensation of moisture. The teflon lines from the manifold to the instruments are insulated with 1/8" wall thickness rubber tubing.

The trailer has four heavy duty high volume particulate samplers (Hi-Vols). Fiberglass filter paper is used for the collection of particulate samples, after which each filter is brought to a controlled humidity before weighing. Each Hi-Vol has a flow recorded to permit correction for changes in air flow as the filter becomes loaded with particulates. Each Hi-Vol runs for a 24-hour period (midnight to midnight) and is turned on and off by the computer. The Hi-Vols, which were manufactured by Radian, were designed following guidelines recommended by the Environmental Protection Agency.

In addition to the normal Hi-Vol particulate samples, a duplicate Hi-Vol sample is collected every sixth day on special filter paper for trace element analysis. Once each quarter these samples are composited and analyzed for gross radioactivity and trace element content.

B. Calibration Procedures

The trailer contains a Meloy Model RAD-1 calibration unit. This instrument provides a zero air supply, SO_2 span gas from an SO_2 permeation tube, and NO span gas obtained by precisely

diluting bottled NO span gas. The computer-controlled calibration of all instruments is automatically performed once a day. Each instrument is first switched to zero; the computer monitors the output of each channel and takes a new zero reading after a stable zero signal has been reached. This zero reading is compared by the computer to the zero reading obtained 24 hours before, and if a drift in excess of 10 ppb has occurred, an excess zero drift light for the channel in question is turned on on the System Status Panel. Next, span gas is supplied to each channel and the computer decides when a stable span value has been reached. This value is recorded and compared to the previous day's value. An excess span drift light on the System Status Panel is turned on if a drift exceeding 10 ppb occurs. The instruments are then returned to the monitor mode and after two minutes the computer resumes data taking.

The bottled NO gas used at each site was obtained from Precision Gas Products. Pre-purified grade hydrogen is used in the SO_2 analyzers.

The SO_2 permeation tubes were manufactured by Metronics Association, Inc. Their output has been verified by comparison to the output of National Bureau of Standards tube 10-42. Both SA185 analyzers in each trailer are calibrated with the SO_2 from the permeation tube. This instrument responds to the number of sulfur atoms per molecule; thus, SO_2 can be used to calibrate both the H_2S and SO_2 monitors.

The Model OA350 ozone analyzer has its own calibration system which provides a zero check and a span check. The ozone calibration system is verified by comparison to a calibrated ozone generator maintained in Radian's laboratory in Rifle.

The Model 8200 total hydrocarbon, methane, and carbon monoxide analyzer is calibrated with undiluted span gas obtained from AirCo's Rare and Specialty Gas Division. This span gas contains methane and carbon monoxide in air, the methane being used to calibrate both the total hydrocarbon channel and the methane channel. The Model 8200 is zeroes with air from a Bendix Model 8834 zero air unit. In addition, the instrument is electronically re-zeroed at the start of every five-minute cycle.

The Hi-Vol particulate samplers were calibrated using a Calibration Kit from General Metal Works.

C. Data Acquisition System

The basis of the data acquisition system is a Data General NOVA 1200 minicomputer. The NOVA, which has a basic cycle time of 1.2 μsec, is equipped with automatic program load and power fail/automatic restart features. The computer utilizes 16K 16-bit words of core memory. Analog-to-digital conversion is accomplished via an ADC built by Radian Corporation. The input/output unit for the system is Texas Instrument's KSR 733 keyboard/printer. This model teletype provides keyboard entry and hardcopy printed output. The data are also recorded on a cassette magnetic tape unit with three drives. The cassette unit is utilized for program storage and loading as well as for recording. To reduce wear on mechanical parts, the power to the teletype and cassette units is turned on only when the unit(s) is (are) to be used. Several important functions in the instruments as well as in the computer and the trailer are monitored by means of lights on a System Status Panel. These data lights are written onto cassette tape to monitor the complete status of the system every five minutes. The Data Acquisition System also monitors the presence of 100V power from the power lines. In its absence, the computer, which is powered by batteries, switches all trailer

systems to battery-provided power. If the line voltage is restored before the batteries are discharged to a specified level, the trailer system is switched back to line power.

D. Meteorological Instrumentation

200-Foot Meteorological Tower

The tower has instrumentation at four levels: 8 feet, 30 feet, 100 feet, and 200 feet. At all four levels, there are: wind speed, wind direction, and temperature and relative humidity sensors in a power-aspirated radiation shield. Temperature difference thermistors (also in power-aspirated radiation shields) and their associated circuitry take lapse rate measurements for the 30-foot to 100-foot layer and the 30-foot to 200-foot layer. In addition, this site has a Precision Spectral Pyranometer, a barometer, and a tipping bucket rain/snow gage.

The wind direction and speed apparatus used at each measurement level of the tower is the Model 1074-2 wind sensor by Meteorological Research, Inc. (MRI). This sensor has a 540° potentiometer for wind direction and a light chopper for wind speed. This sensor is rugged, with an all-weather coaxial cup and damped vane assembly. The prototype model has been in operation for years under the most demanding weather conditions, performing continuously with the utmost reliability. The wind sensors on the tower have been specially treated with a black paint which will promote warming of the exposed surfaces of the sensor and thereby reduce ice and snow accumulations on the moving parts of the apparatus. The specifications on the Model 1074-2 are as follows:

Wind Speed

. Starting Threshold: 0.75 mph.
. Response Distance: 18 feet (63% recovery).
. Flow Coefficient: 7.9 feet/Revolution.
. Accuracy: ±0.4 mph or 1% (whichever is greatest)

Wind Direction

. Starting Threshold: 0.75 mph.
. Delay Distance: 4 feet (50% recovery).
. Damping Ratio: 0.5 to 0.6.
. Accuracy (540° system): ±1%.
. Range: 0° to 540°.

The relative humidity and temperature sensors are mounted within a power-aspirated radiation shield at each tower level. All aspirators and sensors are of the Model 840 Series by MRI. The aspirated shielded housing is designed to provide maximum radiation protection to the sensor. Ambient air is drawn into the shield and across the sensors at approximately 15 feet per second. This intake air is essentially sampled from a hemispherical space which is approximately 3-inch radius from the tube opening. Speed of the incoming air at the perhiphery of this hemisphere is approximately 1 mph.

The temperature sensor is comprised of a dual thermistor and resistor network. This circuit provides a linear resistance change with an air temperature change. The relative humidity sensor is placed alongside the temperature elements inside the shield where it is exposed to a constant flow of air. Circulation to both sides of the sensing element produces accurate monitoring with a good response time. The specifications on the sensing elements are as follows:

Temperature

- Accuracy: ±0.25° C.
- Range: -50°C to +50° C.

Humidity

- Accuracy: ±3.0% RH.
- Range: 0% to 100% Relative Humidity.

Measurements of temperature difference are taken for two layers, the 30-foot to 100-foot and the 30-foot to 200-foot layer. The thermistors and circuitry used for these measurements are separate from the thermistors measuring air temperature. The use of separate thermistors and circuitry to measure ΔT allows for much greater accuracy and resolution in the measurements, which is necessary for stability assessments. Two ΔT thermistors are at the 30-foot level, one is at the 100-foot level, and one is at the 200-foot level. All of these ΔT thermistors are mounted within power-aspirated radiation shields. The specifications on the ΔT instrumentation are as follows:

- Accuracy: ±0.1°C.
- Range of ΔT Circuit (Lower Level-Upper Level): +9F° to -9F°.

All instrumentation, except at the ground level, is mounted at the end of 12-foot retractable booms. These booms are 3-inch box beams which are on rollers and can be retracted to the instrument platforms for instrument maintenance.

The meteorological tower itself is a 200-foot Rohn Model 80 Guyed Tower, designed for 40 pounds per square foot wind load with ½" of radial ice per EIA Standard RS-222-B, to

support four levels of meteorological equipment. The material consists of tower sections with a tapered base, three retractable booms 12-feet long, three outside work platforms, an inside ladder for climbing, two base ground kits and one anchor ground kit. The cable-type Safety Climbing Device consists of a cable and attachment mechanisms with a locking sleeve and safety belt. The tower is lighted and painted according to FAA specifications.

The signals from the tower instrumentation are fed from multiple signal cables into transmitters mounted at the base of the tower. After signals have been converted to analog signals, they are fed into a junction box, also at the tower base, where they are assimilated into one coaxial cable. The signals are then run underground within 3" PVC conduit to the A-to-D assembly, where they are processed. The transmitters are shielded and insulated from the elements. The signal cable is run underground in PVC conduit in order to minimize damage from the weather or from various rodents in the region.

The auxiliary equipment at the tower site consists of a heated tipping bucket rain/snow gage, an analog barometer, and a Precision Spectral Pyranometer. The rain/snow gage is the Model P511-E unit by Weather Measure. In the case of this gage, the durability and reliability of a tipping bucket gage are combined with heavy-duty electric heaters to make this an all-purpose precipitation sensor. This gage may be used to measure both snowfall and rainfall. An insulating cover of poly-vinyl chloride and a thermostatic control insure the proper gage temperature. The thermostatic control is adjustable from 0 to 35°C. Snow falling into the inlet funnel is melted. The resulting water (from rain or snow) drains into a precision tipping bucket mechanism which activates a mercury switch each time the bucket fills and tips. The gage is constructed of durable corrosion-resistant materials to provide many years of service. The

specifications for this gage are as follows:

- Orifice: 8 inches.
- Calibration: 0.01 inch.
- Accuracy: 0.5% (Calibrated at 0.5 in/hr).
- Sensor: Chrome-plated tipping buckets.
- Switch: Mercury, 0.1-second closure.
- Heat Control: Thermostat adjustment, 0 to 35°C.

The barometer is the B242 Analog Output Barometer by Weather Measure. This barometer provides an output voltage that is linearly proportional to pressure. The specifications on this instrument, which is mounted inside the monitoring trailer at the site, are as follows:

- Range: Specially designed for the 100 millibar interval from 725 millibars to 825 millibars.
- Resolution: Infinite.
- Linearity: ±0.5 millibar, over the 100 millibar interval.

The pyranometer at the site is the Eppley Precision Spectral Pyranometer. This instrument is used for the measurement of sun and sky radiation totally or in defined wavelength bands. The pyranometer is levelled and mounted atop a wooden stand 4½ feet from the ground surface. Care has been taken to eliminate the effects from all outside influences, such as reflection or shadows, on the pyranometer. The instrument characteristics are as follows:

- Sensitivity: 5 mv. per cal/cm°/min.
- Independence: 300 ohms.
- Temperature dependence: Sensitivity constant to within ±1 percent over the ambient temperature range from -20 to +40°C.

- Linearity: Response linear up to intensities of 4 cal/cm^2/min.
- Response time: 1 second (i/e signal).

All instrumentation is factory-calibrated and is field-calibrated at various intervals. Sling psychrometers are used to calibrate the humidity sensors; known temperatures and/or resistances are used to calibrate the thermistors; and an rpm calibrating unit is used to calibrate the anemometers. The wind direction instrumentation is aligned to true north (reference direction) by means of a surveyor's transit.

III. MICROMETEOROLOGICAL AND TERRAIN FEATURES

The Piceance Creek Valley and C-b Shale Oil Tract are situated such that many microscale meteorological phenomena affect the region where the ambient air monitoring unit is located. Trailer 023 and its associated 200-foot meteorological tower are located atop a plateau to the south of the valley, high enough to be affected mostly by gradient flow conditions.

The elevation at the meteorological tower site (Trailer 023) is 6940 feet above sea level. The largest gradients in elevation in this area, of course, occur at the Piceance Creek Valley walls. However, the northern valley walls are slightly steeper than those at the southern boundary of the valley, which then slopes upward gradually toward the C-b Tract. The Piceance Creek Valley decreases in elevation from east to west in this area, so that nighttime katabatic cold-air drainage flows advect from east to west.

Site 023 is approximately 2.5 miles south of the Piceance Creek Valley. This location is relatively high compared to its surroundings, with the nearest point having an elevation greater than 7000 feet being .5 miles to the south of the tower. The tower itself is on the top of a small knoll located between Scandard and Sorghum Gulches. Because of its location and the irregularities of the surrounding terrain, meteorological patterns are varied here.

Wind instrumentation is mounted at four levels of the meteorological tower: 8 feet, 30 feet, 100 feet, and 200 feet. The top level of the tower generally remains in gradient wind flow. That is, the winds at that level are normally generated

by synoptic-scale features and are usually separated from terrain features and micrometeorological circulations. Occasionally, a weak anabatic flow influence is experienced. However, such is not the case with the three lowest measurement levels. To varying degrees, these levels are influenced by both the katabatic and anabatic circulation cells. However, when strong pressure gradient forces exist in the region and the synoptic-scale wind flow is strong, all four tower levels will reflect a gradient wind flow as the winds increase in strength and height.

The terrain atop the plateau is generally barren and fairly rugged, with a few scattered small trees. The topsoil dries rapidly and is very fine, resulting in blowing dust when dry, windy conditions exist. In the Piceance Creek Valley, the terrain is fairly grassy and flat, with steep valley walls on either side. Surface winds are normally rather light in this valley unless channeling effects occur.

During clear nights with rather light pressure gradient-induced winds, rapid radiational cooling will occur in the region because of the barren nature of the terrain and the generally dry character of the air in this portion of the country. As a result, the diurnal range of temperatures will be extremely large. Because of the katabatic flow in the valley, nighttime temperatures will generally be lower in the valley than on the plateau. During the winter, especially, temperatures in the valley may be 20F^{o} lower than they are on the plateau during the early morning hours.

IV. OPERATING TIME ANALYSIS FOR EACH SITE

This section presents the operating statistics for each of the major subsystems contained in the monitoring station. Table I shows the specific number of hours that each of these subsystems were inoperative for the month. The column labeled "DIGITIZING SYSTEM" indicates the entire data acquisition system; therefore, downtime hours appearing in this column means total loss of data. These instances include, in addition to computer downtime, power failures, no power available, and self-automated shutdown periods such as during air conditioner malfunctions.

Calibration time is not considered to be downtime and is, therefore, not included in the downtime figures. The amount of time used in calibrating the instruments is given at the bottom of the downtime analysis table and is reported as total calibration hours for each channel for the entire month. As is evident in the calibration figures, channels can be calibrated independently of one another. No calibration time is given for particulate monitoring since Hi-Vol calibration occurs infrequently and only during the off-duty cycle for each Hi-Vol while another Hi-Vol is taking data.

TABLE I.
DOWNTIME HOURS FOR C-B SHALE OIL PROJECT

SITE 023

DATE	DIGITIZING SYSTEM	NOX	NO	SO2	WS	WD	RH	TOUT	PYR	SO2 VOLT	THC	CH4	CO	O3	PRES	RAIN	PART
5/ 1	0.	16.	16.	0.	0.	0.	24.	0.	0.	0.	0.	6.	6.	22.	0.	0.	0.	0.
5/ 2	1.	3.	3.	0.	0.	0.	23.	0.	0.	0.	0.	1.	1.	21.	0.	0.	0.	0.
5/ 3	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	9.	9.	22.	0.	0.	0.	0.
5/ 4	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	7.	7.	7.	0.	0.	0.	0.
5/ 5	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 6	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 7	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 8	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/ 9	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/10	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/11	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/12	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/13	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.
5/14	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/15	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/16	0.	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/17	0.	0.	0.	0.	0.	0.	24.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/18	0.	1.	1.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/19	0.	4.	4.	0.	0.	0.	24.	12.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.
5/20	0.	5.	5.	0.	0.	0.	24.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/21	0.	0.	0.	0.	0.	0.	24.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5/22	0.	0.	0.	0.	0.	0.	24.	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.
5/23	0.	0.	0.	0.	7.	7.	24.	24.	0.	0.	0.	2.	1.	0.	0.	0.	0.	0.
5/24	0.	0.	0.	0.	7.	7.	24.	24.	0.	0.	0.	23.	23.	23.	0.	0.	0.	0.
5/25	0.	0.	0.	0.	0.	0.	24.	24.	0.	0.	0.	22.	22.	22.	0.	0.	0.	0.
5/26	0.	0.	0.	0.	0.	0.	24.	24.	0.	0.	0.	22.	22.	22.	0.	0.	0.	0.
5/27	0.	0.	0.	0.	0.	0.	24.	24.	0.	0.	0.	23.	23.	23.	0.	0.	0.	0.
5/28	4.	0.	0.	0.	0.	0.	20.	20.	0.	0.	0.	19.	19.	19.	0.	0.	0.	24.
5/29	0.	0.	0.	0.	0.	0.	24.	24.	0.	0.	0.	23.	23.	23.	0.	0.	0.	0.
5/30	0.	0.	0.	0.	0.	0.	24.	24.	0.	0.	0.	23.	23.	23.	0.	0.	0.	0.
5/31	0.	0.	0.	0.	0.	0.	24.	24.	0.	0.	0.	15.	15.	23.	0.	0.	0.	0.
CAL TIME		21.	21.	19.	0.	0.	0.	0.	0.	19.	0.	33.	33.	34.	19.	0.	0.	

TABLE I.
DOWNTIME HOURS FOR C-B SHALE OIL PROJECT

SITE 023

DATE	DIGITIZING SYSTEM	WS1	WD1	RH1	TMP1	WS2	WD2	RH2	TMP2	WS3	WD3	RH3	TMP3	WS4	WD4	RH4	TMP4	DT1	DT2
5/ 1	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/ 2	1.	0.	0.	23.	0.	0.	0.	23.	0.	0.	0.	23.	0.	0.	0.	23.	0.	0.	0.
5/ 3	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/ 4	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/ 5	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/ 6	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/ 7	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/ 8	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/ 9	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/10	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/11	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/12	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/13	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/14	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/15	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/16	0.	0.	0.	24.	1.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/17	0.	0.	0.	24.	7.	0.	0.	24.	2.	0.	0.	24.	1.	0.	0.	24.	1.	0.	0.
5/18	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.	24.	0.	0.	0.
5/19	0.	0.	0.	24.	12.	0.	0.	24.	12.	0.	0.	24.	12.	0.	0.	24.	12.	12.	12.
5/20	0.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	24.	24.
5/21	0.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	24.	24.
5/22	0.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	24.	24.
5/23	7.	0.	0.	17.	17.	0.	0.	17.	17.	0.	0.	17.	17.	0.	0.	17.	17.	17.	17.
5/24	7.	0.	0.	17.	17.	0.	0.	17.	17.	0.	0.	17.	17.	0.	0.	17.	17.	17.	17.
5/25	0.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	24.	24.
5/26	0.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	24.	24.
5/27	0.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	24.	24.
5/28	4.	0.	0.	20.	20.	0.	0.	20.	20.	0.	0.	20.	20.	0.	0.	20.	20.	20.	20.
5/29	0.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	24.	24.
5/30	0.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	24.	24.
5/31	0.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	0.	0.	24.	24.	24.	24.
CAL TIME		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TABLE I.
DOWNTIME HOURS FOR C-B SHALE OIL PROJECT

SITE 023

DATE	BWS1	HWD1	VWD1	BWS2	HWD2	VWD2	BWS3	HWD3	VWD3	WSD1	WSD2	WSD3	WSD4	HSD1	VSD1	HSD2	VSD2	HSD3	VSD3
5/ 1	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/ 2	23.	23.	23.	23.	23.	23.	23.	0.	0.	0.	0.	0.	0.	23.	23.	23.	23.	0.	0.
5/ 3	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/ 4	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/ 5	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/ 6	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/ 7	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/ 8	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/ 9	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/10	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/11	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/12	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/13	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/14	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	1.	0.
5/15	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/16	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/17	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/18	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/19	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/20	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/21	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/22	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/23	17.	17.	17.	17.	17.	17.	17.	0.	0.	0.	0.	0.	0.	17.	17.	17.	17.	0.	0.
5/24	17.	17.	17.	17.	17.	17.	17.	0.	0.	0.	0.	0.	0.	17.	17.	17.	17.	0.	0.
5/25	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/26	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/27	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/28	20.	20.	20.	20.	20.	20.	20.	0.	0.	0.	0.	0.	0.	20.	20.	20.	20.	0.	0.
5/29	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/30	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
5/31	24.	24.	24.	24.	24.	24.	24.	0.	0.	0.	0.	0.	0.	24.	24.	24.	24.	0.	0.
CAL TIME	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

V. MONTHLY METEOROLOGICAL SUMMARY

A. Summary of the Meteorological Conditions over North America during May 1977

May 1977 brought warmer than normal temperatures to most of the continental United States. Precipitation totals were below normal over most of the country except for the Rockies and western sections of the country. The long wave circulatory pattern for May featured a trough in the western United States and a ridge in the eastern United States. The mean long wave trough was responsible for the slightly below normal temperatures and much above normal precipitation totals that occurred in the western United States. The mean long wave ridge accounted for the below normal precipitation totals and generally above normal temperatures which affected the eastern United States during May.

The long wave circulation was meridional (north-south) on all days during May except from the 26th through the 29th when it was split flow.

Extratropical low pressure systems were frequent in the United States during May. These low pressure systems usually affected the northern half of the country. The dates and locations of these low pressure systems were as follows:

4th:	Northern Great Plains
5th:	Northern Great Lakes
6th:	Great Basin
8th-9th:	New England
10th:	Upper New England
12th-13th:	Southwest
13th:	Upper New England
15th:	Great Plains

16th: Great Basin
21st-22nd: Great Plains
23rd: Pacific Northwest
24th: Great Basin

On a sectional basis, the following temperature and precipitation anomalies existed during May.

Section	Temperature	Precipitation
Northeast	Much above normal	Below normal
Atlantic Seaboard	Above normal	Below normal
North Central	Much above normal	Below normal
Central	Above normal	Below normal
Southeast	Near normal	Variable
Southwest	Near normal	Variable; mostly below normal
Rockies	Slightly above normal	Variable
West and Pacific Northwest	Slightly below normal	Variable; mostly much above normal

B. Summary of the Meteorological Conditions in Northwestern and West Central Colorado during May 1977

Grand Junction, Colorado, sixty miles to the south-southwest of the Tract C-b, received a total of 0.59 inch of precipitation during May, which is 0.04 inch below the monthly normal of 0.63 inch. Measurable precipitation occurred on the 10th, 13th, 14th, 15th, and the 26th. The region received 70 percent of the possible monthly sunshine. Sky cover by cloudiness averaged 5.2 out of a possible 10 during the daylight hours and 5.2 out of a possible 10 during the entire month. The region had eleven clear days, eleven partly cloudy days, and nine cloudy days during the month.

Air mass changes were frequent during May. Seven frontal passages occurred during the month. These frontal passages occurred regularly as an upper-level trough dominated the western United States throughout the month. Transport winds over the region as a whole were stronger in May than in April. Maritime polar cold frontal passages occurred on the 4th, 7th, 9th, 14th, 16th, 20th, and the 24th.

C. Summary of the Meteorological Conditions in the Oil Shale Tract C-b Region during May 1977

An upper-level trough which had a mean position over the western United States was responsible for the relatively frequent passage of cold fronts through the Tract C-b area during May. Precipitation occurred on the 13th, 14th, 15th, and 26th of May. Temperatures in the Tract C-b region were slightly above normal during May. Seven cold frontal passages occurred during May. Maritime polar cold frontal passages occurred on the 4th, 7th, 9th, 14th, 16th, 20th, and the 24th.

The monthly average temperatures recorded at the meteorological tower during May were 47.8°F at 8 feet; 49.4°F at 30 feet, 48.7°F at 100 feet, and 48.2°F at 200 feet. These averages are somewhat misleading since temperature data was obtained only during the first nineteen days of May. No temperature data was available for the last twelve days of the month. These averages are approximately 6F° higher than those recorded in April. The averages would have been higher had the last twelve days of May been included. The warmest days of the month were the 6th through the 9th and the 12th. The coolest days were the 14th and the 18th. The highest temperature recorded at the meteorological tower during May was 73°F at the 8- and 30-foot levels on the 9th. The coldest temperature recorded at the meteorological tower was 25°F at the 8-foot level on the morning of the 19th.

No relative humidity data was obtained during May since the sensors were removed in early May due to faulty data problems.

Wind speeds on the meteorological tower during May were much stronger on the average than the winds that prevailed during April. Resultant wind vectors at the meteorological tower during

May were as follows: 207.4 degrees at 5.2 miles per hour at 8 feet; 200.8 degrees at 6.9 miles per hour at 30 feet; 199.2 degrees at 7.9 miles per hour at 100 feet; and 208.5 degrees at 8.7 miles per hour at 200 feet.

The scalar average wind speeds associated with these resultant wind vectors were 7, 10, 12, and 13 miles per hour, respectively. The Ekman spiral and Ekman effect, i.e., a veering in direction and increase in speed as a function of increasing height above the surface, were in evidence during most of May. A reference to the May wind rose for the meteorological tower indicates that the winds at that location were primarily south-southwesterly with a high occurrence of southwesterly and southerly winds in addition.

The windiest days of the month at the meteorological tower were the 3rd, 5th, 6th, 16th, 23rd, and the 24th. The days having the lightest winds were the 13th, 19th, 20th, 21st, 27th, 30th, and 31st. The highest five-minute average wind speed recorded at the tower during May was 48 miles per hour at the 200-foot level on the 16th.

Precipitation totals in the Tract C-b Monitoring Network during May were generally slightly below normal. Precipitation occurrences were less numerous during May than during April.

Only 0.36 inch of precipitation was recorded at the meteorological tower during May. The largest daily precipitation total recorded in the network during May was 0.20 inch on May 15th. The greatest five-minute precipitation total recorded during the month was 0.04 inch (a precipitation rate of 0.48 inch/hour), recorded on the 13th and the 15th. Measurable precipitation ($\geq$.01 inch) was recorded at the meteorological tower on the 13th, 14th, 15th, and the 26th. The precipitation on the morning of the 14th was in the form of snow. All other precipitation occurrences were in the form of rainfall.

The monthly average station pressure during May was 786.1 millibars at the meteorological tower. This reading is 3.2 millibars lower than the April average station pressure of 789.3 millibars. The highest daily average station pressure occurred on the 2nd, 30th, and the 31st. The lowest daily average station pressures occurred on the 5th, 6th, and the 16th.

Cloudiness increased in the Tract C-b region during May, compared to the April cloud cover and insolation statistics. The region received an insolation total of 16,221.1 langleys, which is equivalent to a daily average insolation total of 523 langleys/day. This average is below the normal for May of 580 langleys/day in the Tract C-b region. On a diurnal basis, the greatest solar radiation rates occurred between 1100 and 1200 hours. The greatest daily radiation totals were received on the 18th, 29th, 30th, and the 31st. The lowest daily solar radiation totals were received on the 1st, 3rd, the 13th through the 15th, and the 26th through the 28th. The greatest five-minute radiation total received during May was 8.60 langleys (a rate of 1.72 langleys/minute), which occurred on the 21st. The largest hourly insolation total received during May was 88 langleys, which occurred on the 29th between 1200 and 1300 hours.

Because of the progressively increasing solar elevations and the increasingly longer periods of daylight that prevailed during May, the total possible solar radiation which could be received during a day increased monotonically throughout the month. Therefore, even though cloudiness increased during May compared to April, the actual amount of solar radiation received also increased.

The increase in cloudiness which affected the Tract C-b during May caused the "very unstable" stability classes to become much less common than they had been in April. Using the Pasquill method of stability determination, "D" stability (neutral stability) was the most common stability, occurring during 284 daytime hours, or 66.8 percent of the time. In decreasing order of frequency, "C" (slightly unstable) stability occurred during 98 hours, or 23.1 percent of the time, and "B" (very unstable) stability occurred during 43 hours, or 10.1 percent of the time. "A" (extremely unstable) stability did not occur during May.

Using the lapse rate method of stability determination ($\frac{dT}{dZ}$), the neutral ("D"), slightly stable ("E"), and very unstable ("B") stability classes were the most prevalent during May. In general, stable and/or neutral conditions prevailed during the nighttime hours and unstable and/or neutral conditions prevailed during the day. The following table is a diurnal breakdown of the various stability classes. As one proceeds from "A" to "F", the stability class ranges from extremely unstable to extremely stable. The column labeled "number of occurrences" indicates the number of times a particular stability class occurred during the month on an hourly basis. Level I presents the temperature change versus height values ($\frac{dT}{dZ}$) that were considered between 30 feet and 100 feet. Level II indicates the values that were considered between 30 feet and 200 feet.

Using the standard deviation of the horizontal wind (σ_Θ) method of stability determination, "E" stability was the most common stability classification at the 30-, 100-, and 200-foot levels of the meteorological tower due to moderately strong winds at those levels. The "D" stability was the most common stability classification at the 8-foot level due to a higher degree of mechanical turbulence at that level.

LEVEL I $(\frac{dT}{dZ})$ 30 feet to 100 feet

Stability Class /Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	No. of Occurrences
A:	0	2	1	2	1	2	2	7	2	2	0	1	1	0	0	0	0	1	0	1	0	0	0	1	26
B:	2	2	0	0	3	1	4	6	4	2	3	3	2	2	2	2	2	0	8	3	3	2	3	1	60
C:	1	0	2	0	0	0	0	0	3	4	2	2	2	0	3	0	0	3	6	3	1	1	0	0	33
D:	6	3	4	3	2	2	6	6	10	11	14	13	13	16	13	16	16	14	4	7	4	6	6	6	201
E:	3	6	8	7	6	8	5	0	0	0	0	0	0	0	0	0	0	0	0	2	6	6	4	5	66
F:	7	6	4	7	7	6	2	0	0	0	0	0	0	0	0	0	0	0	0	2	4	3	5	5	58

A: extremely unstable
B: very unstable
C: slightly unstable
D: neutral
E: slightly stable
F: extremely stable

LEVEL II $(\frac{dT}{dZ})$ 30 feet to 200 feet

Stability Class /Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	No. of Occurrences
A:	0	2	1	2	1	2	2	6	2	2	0	1	1	0	0	0	0	1	0	1	1	0	0	1	26
B:	3	2	2	0	3	1	4	5	4	2	3	3	2	2	2	2	2	0	7	3	3	1	2	1	59
C:	0	1	0	1	1	1	2	1	3	4	2	2	2	0	3	1	0	3	7	2	0	3	1	1	41
D:	7	2	6	3	2	1	4	7	10	11	14	13	13	16	13	15	16	14	4	9	5	7	7	8	207
E:	4	7	8	10	8	13	5	0	0	0	0	0	0	0	0	0	0	0	0	3	7	6	5	3	79
F:	5	5	2	3	4	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	4	32

The bivane at the 200-foot level of the meteorological tower indicated a pattern of upward vertical motion (negative vertical directions) during May. Upward vertical motion was more pronounced during the daytime hours at the 200-foot level. Upward vertical motions were less pronounced at the 200-foot level during the late night and early morning hours. The bivanes at the 30- and 100-foot levels were removed in late March due to instrumentation problems.

The σ_Θ value obtained at the 200-foot level using the bivane compared favorably with the σ_Θ value obtained at that level using the standard wind instrumentation.

VI. DATA PRESENTATION AND SUMMARY

This section includes summaries for various recorded data at the monitoring sites. The data presentations indicate the variability of pollutant concentrations and meteorological parameters with location and time. In addition, the presentations indicate the functional dependence of pollutant concentration with wind direction. All data except suspended particulates (24-hour samples) are sampled once each second, but recorded as five-minute arithmetic averages of the one-second samples. This averaging technique tends to smooth instantaneous maximum values, and is especially evident when comparing wind gusts to local weather bureau data.

Inherent to any data acquisition system is random noise both from the recording instruments and quantization in the analog-to-digital conversion. The lower threshold for all analytical instruments is twice the maximum noise level generated by the instruments. This lower threshold is 5 ppb for all instruments, except for the ozone analyzer, for which it is 0.5 ppb. Therefore, any values appearing in the data presentations that are less than 5 ppb indicate only a trace of pollutant in question and should not be construed to be absolute levels. In addition, the recorded quantity is simply random noise and averages tend toward zero. Thus, when concentrations are below the lower threshold of the analytical instruments they may appear as a zero entry in the data presentation which does not indicate absolute zero concentration.

All pollutant data (except for particulate data) is taken at the monitoring site in integer parts per billion (ppb) but is presented here in micrograms per cubic meter ($\mu g/m^3$)

assuming standard temperature and pressure of 25°C and 760 mmHg (1013.2 millibars), respectively. The scale factors required to convert μg/m³ at standard conditions back to ppb for the various pollutants are given in the following table.

POLLUTANT	TO CONVERT μg/m³ AT 25°C AND 760 mmHg TO ppb MULTIPLY BY
NO_x	.534
NO	.534
NO_2	.534
SO_2	.384
H_2S	.723
THC	1.536
CH_4	1.536
CO	.877
O_3	.512

The units of the meteorological parameters are given in the table. It should be noted here that inside temperature is monitored and recorded as a functional part of the system but is not presented in this report.

Table III displays the monthly statistics for each monitoring station for the month. To insure statistical significance, and to reduce the possibility of introducing a bias in the presentation, averages are computed only when at least 50 percent of the samples are present, except for relative humidity and temperature, in which case 75 percent of the samples are required. If less than the required samples are present for a particular parameter, that entry will be blank. The number of

samples present for a particular channel is defined as the total possible number of five-minute samples for the averaging time less the computer downtime less the channel downtime less the channel calibration time. The averages in Table III are arithmetic averages with the following exceptions:

- Wind speed and wind direction are computed using a vector averaging technique where the wind speed is treated as the vector magnitude.
- Particulate averages are computed as the geometric mean.

Table IV displays the daily averages. Again, 50 percent of the five-minute samples are required in order to compute an average except for the cases of relative humidity and temperature which require 75 percent. A blank entry indicates an insufficient number of five-minute samples present for that day. Wind speed, wind direction, and particulate averages are computed the same way as described in Table III.

Table V presents the maximum daily five-minute average retained in the data base as well as the time of occurrence. A five-minute maximum average is printed if any samples are present for that day. Therefore, the maximum five-minute average for a channel which experienced considerable downtime or calibration time during the day in question may be misrepresentative of the maximum expected for that channel on that day.

Table VI indicates the five largest averages for various averaging times. The table shows the period of time covered by the average. Maxima are chosen so that time segments

are independent. The maximum averages reported are found using a 'sliding average' technique with the exception of the 24-hour particulate average, which is computed from midnight to midnight. For averaging times less than or equal to three hours, the sliding average is stepped one five-minute sample at a time. For longer averaging times the step size is twelve samples or one hour. For averaging times less than or equal to one hour 100 percent of the five-minute samples must be present to compute an average. Averaging times greater than one hour require 90 percent. Whether or not a sliding average is computed is solely determined by the number of samples present in that averaging time and is independent of daily and monthly averaging criteria.

To demonstrate the functional dependence of recorded parameters upon wind direction, Table VII shows pollutant concentration displayed in a bi-variate distribution with wind direction. The tables display the total number of five-minute samples occurring in each concentration and wind speed class. The mean concentration for all samples occurring in each wind class are also shown. This distribution demonstrates the dependence of high pollutant concentrations upon wind direction. Appendix A shows the stability wind rose diagrams.

The wind speed classifications used in Appendix A are based on the Beaufort wind scale classification system. This is a system of estimating and reporting wind speeds, invented in the early nineteenth century by Admiral Beaufort of the British Navy. It was originally based on the effects of various wind speeds on the amount of canvas that a full-rigged frigate of the period could carry, but has since been modified and modernized. In its present form for international meteorological use it equates: (a) Beaufort force (or Beaufort number); (b) wind speed;

(c) descriptive terms; and (d) visible effects upon land objects or the sea surface. One land adaptation is the NRM wind scale.

The six basic wind speed classifications used in the report are: 1-3 knots, 4-6 knots, 7-10 knots, 11-16 knots, 17-21 knots, and winds of greater than 21 knots. The following table is a complete description of the Beaufort Wind Scale, taken from Physical Climatology, by Helmut Landsberg, 1969.

BEAUFORT WIND SCALE FOR OBSERVATIONS AT LAND STATIONS

Force	Explanatory Title	Specification for Use	Corresponding Limits of Wind Speed at 10 meters ab.grd.				
			Mi/hr.	Knots	Km/hr.	M/sec.	Ft/sec.
0	Calm	Smoke rises vertically	<1	<1	<1	0.3	1
1	Light air	Direction of wind shown by smoke drift, but not by wind vanes	1-3	1-3	1-5	0.3-1.5	1-5
2	Light breeze	Wind felt on face:leaves rustle:ordinary vane moved by wind	4-7	4-6	6-11	1.6-3.3	6-11
3	Gentle breeze	Leaves and small twigs in constant motion;wind extends light flat	8-12	7-10	12-19	3.4-5.4	12-18
4	Moderate breeze	Raises dust and loose paper:small branches are moved	13-18	11-16	20-28	5.5-7.9	19-26
5	Fresh breeze	Small trees in leaf begin to sway:wavelets formed on inland waters	19-24	17-21	29-38	8.0-10.7	27-35
6	Strong breeze	Large branches in motion:whistling heard in telegraph wires:umbrellas used with difficulty	25-31	22-27	39-49	10.8-13.8	36-45
7	High wind	Whole trees in motion:inconvenience felt when walking against wind	32-38	28-33	50-61	13.9-17.1	46-56
8	Fresh gale	Breaks twigs off trees:generally impedes progress	39-46	34-40	62-74	17.2-20.7	57-68
9	Strong gale	Slight structural damage occurs (chimney pots and slates removed)	47-54	41-47	75-88	20.8-24.4	69-80
10	Whole gale	Seldom experienced inland:trees uprooted: considerable structural damage occurs	55-63	48-55	89-102	24.5-28.4	81-93
11	Storm	Very rarely experiences:accompanied by widespread damage	64-72	56-63	103-117	28.5-32.6	94-106
12	Hurricane		73-82	64-71	118-133	32.7-36.9	107-121
13			83-92	72-80	134-149	37.0-41.4	122-136
14			93-102	81-89	150-166	41.5-46.1	137-151
15			104-114	90-99	167-183	46.2-50.9	152-166
16			115-125	100-108	184-201	51.0-56.0	167-183
17			126-136	109-118	202-220	56.1-61.2	184-201

Source: Table 36 (p.119) in R.J. List (1951):Smithsonian Meteorological Tables:Smithsonian Miscell.Coll.Vol. 114.

Table VIII demonstrates the diurnal variation of various recorded parameters. Hourly averages are determined by arithmetically averaging five-minute samples, except for wind direction averages which are computed vectorially assuming unit vector magnitudes. Totals in the diurnal wind direction tables are vector averages of the columns and rows. For all parameters, a blank entry in the diurnal variation table indicates that less than half (i.e., less than 6) of the five-minute samples for that hour are present.

All times given in the data presentation are Mountain Standard Time.

To facilitate comparison of recorded concentrations to ambient air quality standards, the following regulations are presented.

TABLE II

FEDERAL AND COLORADO STANDARDS

	Primary	Secondary	Non-Designated Area	Designated Area		
				1973	1976	1980
Particulate						
Annual G. M.	75 μg/m³	60 μg/m³	45 μg/m³	70 μg/m³	55 μg/m³	45 μg/m³
24 Hr. Max.*	260	150	150	200	180	150
Sulfur Oxides						
Annual	80(.03ppm)		--	60(.02ppm)	25(.009ppm)	10(.004ppm)
24 Hr. Max.*	365(.14ppm)		15(.005ppm)	300(.1ppm)	150(.05ppm)	55(.02ppm)
3 Hr. Max.*	--	1300(.5ppm)	--	--	--	--
1 Hr. Max.**	--	--	--	800(.28ppm)	300(.1ppm)	--
Oxidant						
1 Hr. Max.*	160(.08ppm)	160				
8 Hr. Max.*	--	--				
Annual	--	--				
Hydrocarbons						
3 Hr. Max.* 6-9 a.m.	160(.24ppm)	160				
Carbon Monoxide						
Max. 8 Hrs.*	10000(9ppm)	10000				
Max. 1 Hr.*	40000(35ppm)	40000				
Nitrogen Dioxide						
Annual	100(.05ppm)	100				

Units are micrograms per cubic meter and ppm in parenthesis.

*Not to be exceeded more than once per year.

**Not to be exceeded more than once per month.

TABLE III
AVERAGES FOR MAY 1 THRU 31

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                    TABLE III. AVERAGES FOR MAY    1 THRU 31
      (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
           TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
           PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

      NITROGEN OXIDES(NOX)                NITRIC OXIDE(NO)                 NITROGEN DIOXIDE(NO2)

 SITE   023                            023                              023
         .1                             .1                               .0
---------------------------------------------------------------------------------------------------

       SULFUR DIOXIDE(SO2)                  PYRANOMETER                   SULFUR DIOXIDE(SO2)

 SITE   023                            023                              023
         .1                        16221.1                               .4
---------------------------------------------------------------------------------------------------

       TOTAL HYDROCARBONS                     METHANE                  NON-METHANE HYDROCARBONS

 SITE   023                            023                              023
     1105.8                          921.3                            184.1
---------------------------------------------------------------------------------------------------

        CARBON MONOXIDE                        OZONE                     BAROMETRIC PRESSURE

 SITE   023                            023                              023
      437.8                           95.3                            786.1
---------------------------------------------------------------------------------------------------

       TOTAL PRECIPITATION                  PARTICULATE

 SITE   023                            023
        .36                           18.2
---------------------------------------------------------------------------------------------------
```

```
                    TABLE III. AVERAGES FOR MAY    1 THRU 31
    (UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
          TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
          PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                    WIND SPEED

SITE 023
    (  8-FT)              ( 30-FT)              (100-FT)              (200-FT)
      5.2                   6.9                   7.9                   8.7
--------------------------------------------------------------------------------

                                  WIND DIRECTION

SITE 023
    (  8-FT)              ( 30-FT)              (100-FT)              (200-FT)
    207.4                 200.8                 199.2                 208.5
--------------------------------------------------------------------------------

                                 RELATIVE HUMIDITY

SITE 023
    (  8-FT)              ( 30-FT)              (100-FT)              (200-FT)

--------------------------------------------------------------------------------

                                    TEMPERATURE

SITE 023
    (  8-FT)              ( 30-FT)              (100-FT)              (200-FT)
     47.8                  49.4                  48.7                  48.2
--------------------------------------------------------------------------------
```

TABLE IV
DAILY AVERAGES FOR MAY 1 THRU 31

TABLE IV. DAILY AVERAGES FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	NITROGEN OXIDES(NOX)	NITRIC OXIDE(NO)	NITROGEN DIOXIDE(NO2)
SITE	023	023	023
DATE			
5/ 1			
5/ 2	.1	.1	.1
5/ 3	.0	.0	.0
5/ 4	.0	.0	.0
5/ 5	.0	.0	.0
5/ 6	.0	.0	.0
5/ 7	.0	.0	.0
5/ 8	.4	.2	.2
5/ 9	.0	.0	.0
5/10	.5	.2	.2
5/11	.0	.0	.0
5/12	.0	.0	.0
5/13	.2	.2	.0
5/14	.2	.2	.0
5/15	.1	.1	.0
5/16	.1	.0	.1
5/17	.0	.0	.0
5/18	.0	.0	.0
5/19	1.6	1.0	.6
5/20	.9	.9	.0
5/21	.0	.0	.0
5/22	.0	.0	.0
5/23	.0	.0	.0
5/24	.0	.0	.0
5/25	.0	.0	.0
5/26	.0	.0	.0
5/27	.0	.0	.0
5/28	.5	.4	.2
5/29	.0	.0	.0
5/30	.0	.0	.0
5/31	.0	.0	.0

TABLE IV. DAILY AVERAGES FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	SULFUR DIOXIDE(SO2)	PYRANOMETER	SULFUR DIOXIDE(SO2)
SITE	023	023	023
DATE			
5/ 1	.2	384.1	.2
5/ 2	.0	570.0	.3
5/ 3	.0	349.1	.2
5/ 4	.0	411.2	1.1
5/ 5	.0	657.5	1.4
5/ 6	.0	587.8	.8
5/ 7	.0	644.0	.4
5/ 8	.1	630.4	.0
5/ 9	.5	655.1	.2
5/10	.4	426.3	.0
5/11	.0	594.8	.0
5/12	.2	511.4	.0
5/13	.0	382.0	.1
5/14	.0	209.1	.0
5/15	.0	373.0	.0
5/16	1.7	627.2	2.5
5/17	.6	643.1	.7
5/18	.1	716.6	.3
5/19	.0	505.4	.0
5/20	.0	488.3	.0
5/21	.0	666.8	.0
5/22	.0	567.8	.1
5/23	.0	441.2	1.0
5/24	.0	497.3	1.5
5/25	.0	538.5	.5
5/26	.0	381.5	.0
5/27	.0	363.5	.0
5/28	.0	269.4	.1
5/29	.0	701.6	.3
5/30	.0	713.6	.1
5/31	.0	713.5	.5

TABLE IV. DAILY AVERAGES FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	TOTAL HYDROCARBONS	METHANE	NON-METHANE HYDROCARBONS
SITE DATE	023	023	023
5/ 1	1040.9	872.0	168.9
5/ 2	1236.7	987.2	249.5
5/ 3	1299.0	1040.9	258.1
5/ 4	1081.3	910.3	171.1
5/ 5	1068.3	901.4	166.9
5/ 6	1054.4	893.1	161.3
5/ 7	1072.5	902.9	169.7
5/ 8	1079.5	905.8	173.6
5/ 9	1072.7	904.3	168.4
5/10	1076.5	921.7	154.8
5/11	1095.8	937.7	158.0
5/12	1089.8	928.8	161.1
5/13	1081.5	903.8	177.7
5/14	1071.5	903.2	168.3
5/15	1091.0	910.6	180.4
5/16	1085.4	916.2	169.2
5/17	1065.3	925.4	139.9
5/18	1067.3	918.1	149.2
5/19	1096.9	921.8	175.1
5/20	1117.1	930.1	187.0
5/21	1118.5	926.6	191.9
5/22	1095.7	915.0	180.7
5/23	1267.8	867.1	397.4
5/24			
5/25			
5/26			
5/27			
5/28			
5/29			
5/30			
5/31			

TABLE IV. DAILY AVERAGES FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	CARBON MONOXIDE	OZONE	BAROMETRIC PRESSURE
SITE	023	023	023
DATE			
5/ 1		83.9	788,7
5/ 2		85,9	789.6
5/ 3		88,6	785.0
5/ 4	385.4	95,2	782.0
5/ 5	415.3	87.0	779.4
5/ 6	383.6	85.0	781.6
5/ 7	363.3	89.9	786.6
5/ 8	355.5	86.7	788.4
5/ 9	358.7	80.1	784.8
5/10	383.1	104.8	784.9
5/11	403.8	108.4	786.4
5/12	506.8	108.1	788.5
5/13	589.9	89.7	786.2
5/14	620.9	91.9	782.5
5/15	706.6	91.4	784.3
5/16	540.1	107.2	781.4
5/17	298.2	112.4	782.8
5/18	314.9	103.4	785.2
5/19	329.2	84.4	789.0
5/20	410.9	83.7	788.3
5/21	503.2	93.5	788.3
5/22	418.2	97.7	786.2
5/23	431.7	109.5	784.0
5/24		101.0	784.5
5/25		91.2	785.9
5/26		99.4	786.0
5/27		105.7	785.7
5/28		99.4	786.6
5/29		98.5	786.9
5/30		100.6	793.2
5/31		88.5	795.8

TABLE IV. DAILY AVERAGES FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

	TOTAL PRECIPITATION	PARTICULATE
SITE	023	023
DATE		
5/ 1		14.0
5/ 2		17.0
5/ 3		18.0
5/ 4		18.0
5/ 5		47.0
5/ 6		16.0
5/ 7		40.0
5/ 8		40.0
5/ 9		37.0
5/10		29.0
5/11		24.0
5/12		39.0
5/13	.05	
5/14	.09	6.0
5/15	.20	7.0
5/16		51.0
5/17		67.0
5/18		20.0
5/19		
5/20		8.0
5/21		6.0
5/22		
5/23		46.0
5/24		54.0
5/25		12.0
5/26	.02	9.0
5/27		5.0
5/28		
5/29		12.0
5/30		10.0
5/31		5.0

TABLE IV. DAILY AVERAGES FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

WIND SPEED

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
5/ 1	6.9	9.1	11.0	12.2
5/ 2	5.7	7.6	9.0	9.7
5/ 3	9.7	13.2	16.1	17.3
5/ 4	5.0	7.1	8.2	9.5
5/ 5	10.4	13.5	15.2	16.3
5/ 6	12.3	16.2	19.0	20.8
5/ 7	8.4	11.4	13.0	13.9
5/ 8	6.8	9.3	11.3	12.4
5/ 9	7.9	11.1	13.6	14.9
5/10	8.1	10.8	13.0	14.1
5/11	5.8	7.8	9.3	10.4
5/12	6.8	9.2	11.2	12.9
5/13	1.4	2.2	3.0	3.9
5/14	6.4	8.6	10.5	11.9
5/15	5.2	7.1	8.7	10.0
5/16	12.1	15.4	17.8	19.6
5/17	7.0	8.8	9.8	10.6
5/18	6.6	8.4	9.1	9.7
5/19	1.3	1.7	1.6	2.1
5/20	3.0	4.2	5.1	5.9
5/21	2.5	3.3	4.1	4.7
5/22	4.0	5.7	7.1	7.9
5/23	9.2	11.9	13.8	15.4
5/24	12.4	16.1	18.5	19.9
5/25	6.8	9.0	9.9	10.4
5/26	3.7	5.2	5.9	6.3
5/27	1.8	2.6	2.9	3.3
5/28	1.9	3.1	3.7	3.9
5/29	4.0	5.0	5.4	5.7
5/30	2.7	3.7	4.4	4.7
5/31	2.0	2.8	3.6	3.8

TABLE IV. DAILY AVERAGES FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

WIND DIRECTION

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
5/ 1	204.5	198.2	197.2	204.2
5/ 2	213.3	206.3	205.8	216.5
5/ 3	189.6	182.5	180.1	188.5
5/ 4	266.5	260.6	263.5	271.1
5/ 5	204.7	199.1	199.9	210.0
5/ 6	194.5	187.1	185.4	194.5
5/ 7	188.5	180.1	177.2	186.2
5/ 8	196.8	188.8	188.5	198.2
5/ 9	184.1	176.2	173.7	182.1
5/10	221.1	213.6	212.8	222.2
5/11	199.6	192.1	187.9	196.7
5/12	173.0	165.9	165.4	172.7
5/13	196.2	184.6	174.6	184.3
5/14	217.3	211.3	213.0	222.3
5/15	224.8	217.7	217.7	225.6
5/16	194.7	188.3	187.1	194.3
5/17	212.9	210.1	210.1	218.3
5/18	219.0	214.2	214.1	224.8
5/19	267.3	268.4	288.0	296.1
5/20	314.8	308.1	318.6	326.6
5/21	318.2	306.2	308.4	309.8
5/22	212.2	204.1	201.9	212.1
5/23	189.3	182.4	181.8	191.7
5/24	200.5	194.6	193.5	202.4
5/25	206.5	201.4	200.6	210.3
5/26	207.7	199.7	195.8	206.4
5/27	249.2	245.4	247.9	261.8
5/28	165.5	155.7	150.2	161.9
5/29	239.7	235.7	234.0	245.3
5/30	327.1	321.8	331.3	338.4
5/31	333.7	328.6	334.4	337.2

TABLE IV. DAILY AVERAGES FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

TEMPERATURE

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
5/ 1	49.4	51.5	50.9	50.7
5/ 2	49.6	52.0	51.5	51.3
5/ 3	49.2	51.2	50.7	50.3
5/ 4	45.4	46.8	45.9	45.3
5/ 5	48.7	50.3	49.2	48.6
5/ 6	52.8	54.3	53.3	52.9
5/ 7	54.3	57.1	56.6	56.1
5/ 8	54.1	57.0	57.1	57.1
5/ 9	59.1	61.6	61.1	60.9
5/10	42.5	44.0	43.5	42.8
5/11	46.9	49.6	49.5	49.2
5/12	53.0	55.1	54.4	54.1
5/13	48.5	50.6	49.9	49.1
5/14	37.7	38.8	38.0	36.8
5/15	42.6	43.6	42.7	41.7
5/16	46.7	48.4	47.3	46.6
5/17		44.1	43.1	42.2
5/18	40.8	40.2	39.2	38.6
5/19				
5/20				
5/21				
5/22				
5/23				
5/24				
5/25				
5/26				
5/27				
5/28				
5/29				
5/30				
5/31				

TABLE V

MAXIMUM FIVE-MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY 1 THRU 31

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   TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY   1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                         NITROGEN OXIDES(NOX)

    SITE      023
DATE
-----------------------------------------------------------------------------------------
 5/ 1        1,9( 1:35)
 5/ 2       24,3( 3:00)
 5/ 3         ,0( 0:00)
 5/ 4        1,9( 7:10)
 5/ 5         ,0( 0:00)
 5/ 6         ,0( 0:00)
 5/ 7         ,0( 0:00)
 5/ 8        1,9( 3:50)
 5/ 9        1,9( 0:00)
 5/10        1,9( 3:30)
-----------------------------------------------------------------------------------------
 5/11        1,9( 0:30)
 5/12         ,0( 0:00)
 5/13       59,9( 8:40)
 5/14        1,9( 3:30)
 5/15        1,9( 0:10)
 5/16        1,9( 2:25)
 5/17        1,9(14:30)
 5/18        1,9(19:40)
 5/19       31,8(16:15)
 5/20       18,7( 7:55)
-----------------------------------------------------------------------------------------
 5/21        1,9(12:30)
 5/22         ,0( 0:00)
 5/23         ,0( 0:00)
 5/24        1,9( 9:50)
 5/25         ,0( 0:00)
 5/26         ,0( 0:00)
 5/27         ,0( 0:00)
 5/28        1,9( 3:30)
 5/29         ,0( 0:00)
 5/30         ,0( 0:00)
-----------------------------------------------------------------------------------------
 5/31         ,0( 0:00)
```

TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

NITRIC OXIDE(NO)

```
    SITE      023
DATE
-------------------------
 5/ 1        .0( 0:00)
 5/ 2      13.1( 3:00)
 5/ 3        .0( 0:00)
 5/ 4       1.9( 7:10)
 5/ 5        .0( 0:00)
 5/ 6        .0( 0:00)
 5/ 7        .0( 0:00)
 5/ 8       1.9( 3:50)
 5/ 9       1.9( 0:00)
 5/10       1.9( 3:30)
-------------------------
 5/11       1.9( 0:30)
 5/12        .0( 0:00)
 5/13      52.4( 8:40)
 5/14       1.9( 3:30)
 5/15       1.9( 0:10)
 5/16        .0( 0:00)
 5/17       1.9(14:55)
 5/18       1.9(19:40)
 5/19      18.7(17:15)
 5/20      18.7( 7:55)
-------------------------
 5/21       1.9(12:30)
 5/22        .0( 0:00)
 5/23        .0( 0:00)
 5/24       1.9( 9:50)
 5/25        .0( 0:00)
 5/26        .0( 0:00)
 5/27        .0( 0:00)
 5/28       1.9( 4:05)
 5/29        .0( 0:00)
 5/30        .0( 0:00)
-------------------------
 5/31        .0( 0:00)
```

```
   TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY   1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              NITROGEN DIOXIDE(NO2)

     SITE     023
DATE
-------------------------------------------------------------------------------
 5/ 1       1.9( 1:35)
 5/ 2      11.2( 3:00)
 5/ 3        .0( 0:00)
 5/ 4        .0( 0:00)
 5/ 5        .0( 0:00)
 5/ 6        .0( 0:00)
 5/ 7        .0( 0:00)
 5/ 8       1.9( 9:50)
 5/ 9       1.9( 0:30)
 5/10       1.9(11:15)
-------------------------------------------------------------------------------
 5/11        .0( 0:00)
 5/12        .0( 0:00)
 5/13       7.5( 8:40)
 5/14        .0( 0:00)
 5/15       1.9(12:20)
 5/16       1.9( 2:25)
 5/17       1.9(14:30)
 5/18        .0( 0:00)
 5/19      31.8(16:15)
 5/20        .0( 0:15)
-------------------------------------------------------------------------------
 5/21        .0( 0:00)
 5/22        .0( 0:00)
 5/23        .0( 0:00)
 5/24        .0( 0:00)
 5/25        .0( 0:00)
 5/26        .0( 0:00)
 5/27        .0( 0:00)
 5/28       1.9( 3:30)
 5/29        .0( 0:00)
 5/30        .0( 0:00)
-------------------------------------------------------------------------------
 5/31        .0( 0:00)
```

```
   TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY    1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                             SULFUR DIOXIDE(SO2)

    SITE      023
DATE
--------------------------------------------------------------------------------------
 5/ 1        2.6( 0:00)
 5/ 2         .0( 0:00)
 5/ 3         .0( 0:00)
 5/ 4         .0( 0:00)
 5/ 5        2.6( 3:55)
 5/ 6         .0( 0:00)
 5/ 7         .0( 0:00)
 5/ 8        5.2(12:50)
 5/ 9        2.6( 4:05)
 5/10        2.6( 0:35)
--------------------------------------------------------------------------------------
 5/11         .0( 0:00)
 5/12        2.6( 3:55)
 5/13        2.6( 3:25)
 5/14         .0( 0:00)
 5/15        2.6( 0:40)
 5/16       10.4(19:30)
 5/17        7.8(11:20)
 5/18        2.6( 3:40)
 5/19        2.6( 2:20)
 5/20        2.6( 3:55)
--------------------------------------------------------------------------------------
 5/21         .0( 0:00)
 5/22         .0( 0:00)
 5/23         .0( 0:00)
 5/24        2.6(13:35)
 5/25        2.6( 9:55)
 5/26       10.4(14:25)
 5/27         .0( 0:00)
 5/28        2.6(19:15)
 5/29         .0( 0:00)
 5/30         .0( 0:00)
--------------------------------------------------------------------------------------
 5/31         .0( 0:00)
```

```
   TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY   1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                             PYRANOMETER

   SITE     023
DATE
-------------------------------------------------------------------------------------
 5/ 1      6.35(14:25)
 5/ 2      6.85(11:55)
 5/ 3      7.25(14:05)
 5/ 4      7.85(12:45)
 5/ 5      7.10(11:40)
 5/ 6      7.25(12:50)
 5/ 7      6.75(11:30)
 5/ 8      6.75(11:20)
 5/ 9      7.00(11:50)
 5/10      8.45(13:00)
-------------------------------------------------------------------------------------
 5/11      6.90(11:30)
 5/12      7.25(13:45)
 5/13      7.20(10:40)
 5/14      5.20(13:15)
 5/15      7.90(13:45)
 5/16      6.95(11:45)
 5/17      7.05(12:00)
 5/18      7.25(11:35)
 5/19      8.05(12:30)
 5/20      7.85(10:45)
-------------------------------------------------------------------------------------
 5/21      8.60(11:25)
 5/22      8.00(12:50)
 5/23      7.80(12:15)
 5/24      7.40(11:20)
 5/25      7.65(11:10)
 5/26      8.15(13:30)
 5/27      8.05(11:55)
 5/28      7.55(12:15)
 5/29      8.05(12:00)
 5/30      7.00(11:50)
-------------------------------------------------------------------------------------
 5/31      6.95(11:45)
```

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   TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY   1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              SULFUR DIOXIDE(SO2)

     SITE      023
DATE
--------------------------------------------------------------------------------
 5/ 1        1.4( 8:35)
 5/ 2        2.8(22:15)
 5/ 3        2.8( 0:00)
 5/ 4        4.2(12:45)
 5/ 5        5.5( 9:25)
 5/ 6        2.8( 1:50)
 5/ 7        2.8( 0:00)
 5/ 8        1.4( 1:30)
 5/ 9        1.4( 1:30)
 5/10        1.4( 0:50)
--------------------------------------------------------------------------------
 5/11        1.4( 3:35)
 5/12        1.4( 3:30)
 5/13        1.4( 3:25)
 5/14        2.8( 3:25)
 5/15        2.8( 3:25)
 5/16        8.3(15:20)
 5/17        6.9( 0:10)
 5/18        2.8( 3:25)
 5/19        1.4( 3:25)
 5/20        1.4( 0:55)
--------------------------------------------------------------------------------
 5/21        1.4( 0:50)
 5/22        2.8( 3:30)
 5/23        4.2(22:25)
 5/24        4.2( 0:25)
 5/25        4.2( 0:20)
 5/26        2.8(14:25)
 5/27        1.4( 3:25)
 5/28        1.4(20:50)
 5/29        2.8( 2:50)
 5/30        1.4( 3:25)
--------------------------------------------------------------------------------
 5/31        2.8( 3:25)
```

TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

TOTAL HYDROCARBONS

SITE DATE	023
5/ 1	1090.8(22:45)
5/ 2	1566.2(23:20)
5/ 3	1574.7(0:40)
5/ 4	1467.9(10:50)
5/ 5	1152.7(8:05)
5/ 6	1094.1(18:20)
5/ 7	1127.3(7:35)
5/ 8	1154.6(21:00)
5/ 9	1119.5(8:15)
5/10	1137.0(14:40)
5/11	1162.4(9:20)
5/12	1151.4(8:20)
5/13	2108.7(17:10)
5/14	1124.0(13:05)
5/15	1162.4(10:00)
5/16	1512.2(14:40)
5/17	1124.0(20:55)
5/18	1152.7(7:55)
5/19	1197.6(22:00)
5/20	1443.8(3:55)
5/21	1235.4(4:55)
5/22	1189.8(8:40)
5/23	3198.8(6:30)
5/24	
5/25	
5/26	
5/27	
5/28	
5/29	
5/30	
5/31	1443.8(22:35)

```
   TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY   1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                  METHANE

    SITE      023
DATE
--------------------------------------------------------------------------------------------
 5/ 1       922.1(20:10)
 5/ 2      1200.9(16:15)
 5/ 3      1192.4( 6:50)
 5/ 4       933.2(22:10)
 5/ 5       947.5( 1:45)
 5/ 6       909.8(11:45)
 5/ 7       920.8(18:15)
 5/ 8       928.7(18:45)
 5/ 9       920.8( 1:45)
 5/10       947.5(16:35)
--------------------------------------------------------------------------------------------
 5/11       954.1(17:55)
 5/12       960.6( 5:40)
 5/13       922.1( 1:20)
 5/14       922.1(10:45)
 5/15       928.7(10:50)
 5/16       931.9( 8:45)
 5/17       957.3( 2:00)
 5/18       956.0( 6:00)
 5/19      1012.7(22:05)
 5/20      1114.9( 7:35)
--------------------------------------------------------------------------------------------
 5/21       956.0( 8:10)
 5/22       933.2( 2:25)
 5/23      1237.3(20:05)
 5/24
 5/25
 5/26
 5/27
 5/28
 5/29
 5/30
--------------------------------------------------------------------------------------------
 5/31      1216.5(18:20)
```

TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

NON-METHANE HYDROCARBONS

SITE DATE	023
5/ 1	224.0(22:45)
5/ 2	544.4(14:20)
5/ 3	393.3(14:30)
5/ 4	567.9(10:50)
5/ 5	246.2(8:05)
5/ 6	203.8(0:05)
5/ 7	224.0(7:35)
5/ 8	246.8(21:00)
5/ 9	221.4(9:00)
5/10	216.2(14:40)
5/11	233.8(9:20)
5/12	227.9(16:45)
5/13	1202.2(17:10)
5/14	227.9(13:40)
5/15	251.4(13:45)
5/16	605.6(14:40)
5/17	195.4(13:30)
5/18	238.4(7:55)
5/19	250.7(12:45)
5/20	641.5(14:05)
5/21	310.0(4:55)
5/22	274.2(8:40)
5/23	2246.1(11:55)
5/24	
5/25	
5/26	
5/27	
5/28	
5/29	
5/30	
5/31	280.0(15:05)

```
   TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY    1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
      TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
      PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              CARBON MONOXIDE

    SITE     023
DATE
------------------------------------------------------------------------------------------
 5/ 1
 5/ 2
 5/ 3
 5/ 4      417.1(13:40)
 5/ 5     4019.6( 9:25)
 5/ 6      422.8(15:25)
 5/ 7      417.1( 0:40)
 5/ 8      430.8(15:30)
 5/ 9      400.0( 9:55)
 5/10      419.4(11:30)
------------------------------------------------------------------------------------------
 5/11      492.3(11:35)
 5/12     3996.8( 9:00)
 5/13     1499.8(11:10)
 5/14      957.3(15:30)
 5/15     1063.3(14:40)
 5/16     3070.2(11:00)
 5/17      363.5( 8:10)
 5/18     4469.7(12:20)
 5/19      372.7( 8:15)
 5/20      578.9(23:00)
------------------------------------------------------------------------------------------
 5/21      592.6( 1:25)
 5/22      484.4( 0:15)
 5/23      909.4( 6:50)
 5/24
 5/25
 5/26
 5/27
 5/28
 5/29
 5/30
------------------------------------------------------------------------------------------
 5/31
```

```
   TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY   1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
        TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
        PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                                       OZONE

     SITE      023
DATE
-----------------------------------------------------------------------------------------
 5/ 1        97.7(16:20)
 5/ 2       101.6(16:25)
 5/ 3       101.6(15:05)
 5/ 4       113.3(14:40)
 5/ 5       105.5( 8:50)
 5/ 6        95.7(13:25)
 5/ 7       109.4(16:20)
 5/ 8        99.6(16:55)
 5/ 9        87.9( 0:05)
 5/10       125.0( 9:10)
-----------------------------------------------------------------------------------------
 5/11       123.1(17:50)
 5/12       123.1(10:30)
 5/13       107.5( 9:05)
 5/14       119.2(11:55)
 5/15       107.5(10:40)
 5/16       127.0(14:45)
 5/17       128.9(14:40)
 5/18       123.1(11:45)
 5/19        95.7( 7:50)
 5/20       105.5(16:35)
-----------------------------------------------------------------------------------------
 5/21       111.4(14:10)
 5/22       109.4(13:25)
 5/23       128.9(17:25)
 5/24       113.3(13:45)
 5/25       119.2(14:30)
 5/26       125.0(15:35)
 5/27       130.9(12:15)
 5/28       121.1( 9:25)
 5/29       123.1(13:40)
 5/30       125.0(12:50)
-----------------------------------------------------------------------------------------
 5/31       113.3( 9:15)
```

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   TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY   1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
       TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
       PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                              BAROMETRIC PRESSURE

     SITE      023
DATE
----------------------------------------------------------------------------------------
 5/ 1       790.0(11:10)
 5/ 2       791.0( 0:00)
 5/ 3       789.0( 0:00)
 5/ 4       784.0( 7:50)
 5/ 5       783.0( 0:00)
 5/ 6       785.0(22:35)
 5/ 7       788.0( 6:05)
 5/ 8       790.0( 6:25)
 5/ 9       789.0( 0:00)
 5/10       786.0( 8:50)
----------------------------------------------------------------------------------------
 5/11       787.0( 0:00)
 5/12       790.0( 7:15)
 5/13       789.0( 0:00)
 5/14       785.0( 0:00)
 5/15       785.0( 4:40)
 5/16       784.0( 0:00)
 5/17       784.0( 1:10)
 5/18       789.0(22:00)
 5/19       790.0( 5:45)
 5/20       790.0( 0:00)
----------------------------------------------------------------------------------------
 5/21       790.0( 6:25)
 5/22       787.0( 0:00)
 5/23       786.0( 9:10)
 5/24       786.0(19:35)
 5/25       787.0( 7:15)
 5/26       787.0( 0:00)
 5/27       788.0(23:05)
 5/28       788.0( 4:40)
 5/29       790.0(23:05)
 5/30       796.0(23:25)
----------------------------------------------------------------------------------------
 5/31       797.0( 5:45)
```

```
   TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY   1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
        TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
        PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

                         TOTAL PRECIPITATION

     SITE      023
DATE
------------------------------------------------------------------------------------------
 5/ 1
 5/ 2
 5/ 3
 5/ 4
 5/ 5
 5/ 6
 5/ 7
 5/ 8
 5/ 9
 5/10
------------------------------------------------------------------------------------------
 5/11
 5/12
 5/13         .04(17:15)
 5/14         .01( 3:40)
 5/15         .04(15:25)
 5/16
 5/17
 5/18
 5/19
 5/20
------------------------------------------------------------------------------------------
 5/21
 5/22
 5/23
 5/24
 5/25
 5/26         .01( 8:10)
 5/27
 5/28
 5/29
 5/30
------------------------------------------------------------------------------------------
 5/31
```

CORPORATION

TABLE V, MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

WIND SPEED - WIND DIRECTION

SITE 023

DATE	(8-FT)		(30-FT)		(100-FT)		(200-FT)	
5/ 1	19.0	212.0(10:35)	24.0	205.0(7:20)	28.0	205.0(7:20)	32.0	205.0(7:25)
5/ 2	17.0	209.0(13:40)	21.0	201.0(13:40)	24.0	200.0(13:40)	25.0	209.0(13:40)
5/ 3	22.0	177.0(14:15)	27.0	175.0(14:15)	33.0	157.0(16:55)	35.0	164.0(16:55)
5/ 4	18.0	220.0(15:50)	23.0	213.0(15:45)	27.0	210.0(16:40)	31.0	219.0(16:40)
5/ 5	24.0	200.0(20:25)	30.0	200.0(13:00)	35.0	201.0(13:00)	38.0	214.0(13:10)
5/ 6	23.0	222.0(9:35)	28.0	193.0(8:40)	32.0	208.0(9:35)	34.0	215.0(9:35)
5/ 7	22.0	185.0(14:05)	29.0	182.0(14:05)	31.0	181.0(14:05)	33.0	191.0(14:05)
5/ 8	21.0	202.0(15:15)	25.0	169.0(12:55)	28.0	192.0(15:15)	30.0	199.0(15:15)
5/ 9	19.0	188.0(12:40)	23.0	177.0(12:40)	25.0	176.0(12:40)	26.0	183.0(12:40)
5/10	23.0	233.0(14:55)	26.0	218.0(14:55)	31.0	216.0(14:55)	33.0	224.0(14:55)
5/11	18.0	193.0(11:25)	23.0	197.0(15:20)	28.0	198.0(15:20)	30.0	206.0(15:20)
5/12	21.0	183.0(11:05)	27.0	176.0(18:10)	30.0	174.0(18:10)	35.0	188.0(18:15)
5/13	24.0	199.0(17:00)	30.0	190.0(17:00)	36.0	183.0(17:15)	42.0	190.0(17:15)
5/14	17.0	223.0(15:55)	22.0	212.0(20:05)	28.0	213.0(20:05)	31.0	222.0(20:05)
5/15	21.0	264.0(15:20)	26.0	252.0(15:20)	31.0	253.0(15:20)	32.0	262.0(15:20)
5/16	31.0	203.0(13:20)	38.0	172.0(11:45)	43.0	171.0(11:45)	48.0	196.0(13:25)
5/17	24.0	214.0(11:35)	30.0	199.0(11:10)	35.0	198.0(11:10)	39.0	205.0(11:45)
5/18	21.0	220.0(11:20)	27.0	200.0(10:00)	31.0	199.0(10:00)	34.0	209.0(10:00)
5/19	12.0	347.0(21:15)	16.0	340.0(20:55)	20.0	341.0(20:55)	22.0	344.0(20:55)
5/20	18.0	356.0(17:25)	25.0	349.0(17:25)	28.0	350.0(17:25)	30.0	354.0(17:25)
5/21	13.0	334.0(12:25)	15.0	304.0(14:20)	16.0	321.0(10:40)	16.0	324.0(10:40)
5/22	15.0	236.0(14:15)	19.0	230.0(14:15)	22.0	173.0(23:50)	25.0	182.0(23:45)
5/23	24.0	197.0(12:00)	29.0	189.0(12:00)	31.0	186.0(12:00)	34.0	212.0(13:45)
5/24	27.0	188.0(12:20)	36.0	200.0(13:10)	42.0	201.0(13:10)	46.0	206.0(13:10)
5/25	18.0	217.0(11:40)	23.0	215.0(13:20)	26.0	206.0(11:40)	28.0	213.0(11:40)
5/26	20.0	230.0(9:45)	27.0	224.0(9:45)	32.0	221.0(9:45)	33.0	230.0(9:45)
5/27	16.0	209.0(7:05)	22.0	204.0(7:05)	27.0	210.0(8:55)	31.0	217.0(8:55)
5/28	16.0	208.0(9:50)	19.0	197.0(9:35)	21.0	197.0(9:35)	23.0	206.0(9:35)
5/29	19.0	237.0(15:45)	24.0	230.0(15:45)	28.0	214.0(15:55)	32.0	214.0(16:00)
5/30	14.0	307.0(13:25)	18.0	296.0(13:25)	20.0	300.0(13:25)	20.0	306.0(13:25)
5/31	11.0	308.0(18:05)	15.0	299.0(18:05)	17.0	305.0(18:05)	17.0	312.0(18:05)

TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR MAY 1 THRU 31
(UNITS:CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH;
PYRANOMETER-TOTAL LANGLEYS; PRESSURE-MILLIBARS; PRECIPITATION-INCHES)

TEMPERATURE

SITE 023

DATE	(8-FT)	(30-FT)	(100-FT)	(200-FT)
5/ 1	58.0(8:45)	58.0(0:00)	60.0(0:00)	60.0(0:00)
5/ 2	65.0(13:15)	63.0(14:55)	61.0(14:55)	62.0(16:30)
5/ 3	59.0(10:00)	59.0(10:10)	57.0(10:10)	57.0(10:25)
5/ 4	58.0(14:45)	57.0(16:35)	55.0(16:35)	55.0(15:45)
5/ 5	64.0(14:05)	62.0(15:35)	60.0(16:10)	60.0(16:00)
5/ 6	66.0(15:05)	63.0(15:00)	61.0(15:00)	61.0(15:05)
5/ 7	69.0(13:05)	69.0(14:45)	67.0(15:15)	67.0(15:20)
5/ 8	70.0(14:25)	69.0(15:00)	67.0(15:00)	68.0(16:05)
5/ 9	73.0(15:10)	73.0(17:05)	71.0(17:05)	70.0(17:05)
5/10	53.0(0:00)	56.0(0:00)	55.0(0:00)	54.0(0:00)
5/11	64.0(13:30)	64.0(15:15)	62.0(15:15)	61.0(14:55)
5/12	67.0(14:25)	66.0(13:55)	64.0(13:55)	63.0(14:25)
5/13	63.0(15:05)	63.0(15:15)	61.0(15:15)	60.0(15:15)
5/14	44.0(15:50)	43.0(13:20)	42.0(13:30)	42.0(13:30)
5/15	53.0(10:40)	52.0(14:55)	51.0(14:55)	50.0(10:10)
5/16	62.0(15:35)	60.0(14:00)	58.0(15:00)	57.0(14:05)
5/17	61.0(14:35)	58.0(14:30)	56.0(14:30)	56.0(14:30)
5/18	53.0(15:10)	50.0(15:10)	48.0(15:10)	48.0(14:05)
5/19	50.0(10:40)	49.0(11:40)	47.0(11:40)	46.0(11:40)
5/20				
5/21				
5/22				
5/23				
5/24				
5/25				
5/26				
5/27				
5/28				
5/29				
5/30				
5/31				

TABLE VI
THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAY 1 THRU 31

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TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAY   1-31
                  (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
              UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                     WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                  NITROGEN OXIDES[WS: WD]
                                       1-HOUR
SITE              023

 1. 5/19(17:45-18:45)   9.4[ 7:333]
 2. 5/20( 0:10- 1:10)   5.6[ 3:167]
 3. 5/19( 3:45- 4:45)   3.3[ 4:213]
 4. 5/28( 5:55- 6:55)   1.7[ 8:138]
 5. 5/28(10:30-11:30)   1.6[ 8:356]
--------------------------------------------------------------------------------------------

                                   NITRIC OXIDE[WS: WD]
                                       1-HOUR
SITE              023

 1. 5/20( 0:10- 1:10)   5.6[ 3:167]
 2. 5/19( 3:45- 4:45)   3.3[ 4:213]
 3. 5/19(17:20-18:20)   2.5[ 9:334]
 4. 5/28(10:50-11:50)   1.4[ 7:357]
 5. 5/28( 4:15- 5:15)   1.2[ 5:138]
--------------------------------------------------------------------------------------------

                                  NITROGEN DIOXIDE[WS: WD]
                                       1-HOUR
SITE              023

 1. 5/19(17:40-18:40)   7.3[ 8:332]
 2. 5/ 8(17:20-18:20)   1.2[16:207]
 3. 5/10(18:45-19:45)   1.2[ 7:199]
 4. 5/ 8(14:35-15:35)    .8[18:200]
 5. 5/ 8(18:25-19:25)    .8[10:204]
--------------------------------------------------------------------------------------------
```

```
          TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAY    1-31
                     (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                    WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                   SULFUR DIOXIDE[WS: WD]
                                     1-HOUR
SITE               023

 1. 5/16(18:40-19:40)   5.2[26:202]
 2. 5/16(16:10-17:10)   5.0[25:188]
 3. 5/16(14:45-15:45)   4.8[29:181]
 4. 5/16(19:55-20:55)   4.8[14:231]
 5. 5/16(21:10-22:10)   4.3[13:301]
-------------------------------------------------------------------------------------------

                                   SULFUR DIOXIDE[WS: WD]
                                     3-HOUR
SITE               023

 1. 5/16(18:55-21:55)   4.7[17:236]
 2. 5/16(14:40-17:40)   4.4[27:187]
 3. 5/16(22:00- 1:00)   2.5[ 6:323]
 4. 5/17( 8:50-11:50)   2.2[25:194]
 5. 5/10( 3:20- 6:20)   1.5[ 6:220]
-------------------------------------------------------------------------------------------

                                   SULFUR DIOXIDE[WS: WD]
                                    24-HOUR
SITE               023

 1. 5/16- 5/17(13:00)   2.3[16:220]
 2. 5/ 9- 5/10( 9:00)    .8[11:195]
 3. 5/11- 5/12(12:00)    .2[ 9:193]
 4. 5/18- 5/19( 3:00)    .1[11:209]
 5. 5/ 1- 5/ 2( 1:00)    .1[10:190]
-------------------------------------------------------------------------------------------
```

```
            TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAY   1-31
                         (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                      UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                             WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                       SULFUR DIOXIDE[WS: WD]
                                           1-HOUR
SITE                023

 1. 5/16(15:35-16:35)   8.1[27:189]
 2. 5/16(16:40-17:40)   6.1[26:191]
 3. 5/17( 1:55- 2:55)   5.8[ 3: 30]
 4. 5/16(23:35- 0:35)   5.5[ 5:353]
 5. 5/16(20:15-21:15)   4.2[12:234]
-----------------------------------------------------------------------------------------------------

                                     TOTAL HYDROCARBONS[WS: WD]
                                         3-HOUR(6-9AM)
SITE                023

 1. 5/23( 6:00- 9:00)1364.3[13:156]
 2. 5/20( 6:00- 9:00)1229.3[ 2:295]
 3. 5/22( 6:00- 9:00)1131.0[ 5: 11]
 4. 5/21( 6:00- 9:00)1121.5[ 4:349]
 5. 5/11( 6:00- 9:00)1112.5[ 7:116]
   PRIMARY STANDARD EXCEEDED  19 TIMES AT SITE 023
 SECONDARY STANDARD EXCEEDED  19 TIMES AT SITE 023
-----------------------------------------------------------------------------------------------------
```

```
                    TABLE VI. THE FIVE MAXIMUM AVERAGES FOR MAY    1-31
                              (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                   UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                          WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                         METHANE[WS: WD]
                                           3-HOUR(6-9AM)
SITE              023

 1. 5/20( 6:00- 9:00) 981.7[ 2:295]
 2. 5/11( 6:00- 9:00) 932.7[ 7:116]
 3. 5/21( 6:00- 9:00) 932.3[ 4:349]
 4. 5/17( 6:00- 9:00) 927.8[12:201]
 5. 5/18( 6:00- 9:00) 925.3[14:177]
   PRIMARY STANDARD EXCEEDED  19 TIMES AT SITE 023
 SECONDARY STANDARD EXCEEDED  19 TIMES AT SITE 023
------------------------------------------------------------------------------------------------
```

```
                              TABLE VI. THE FIVE MAXIMUM AVERAGES FOR MAY    1-31
                                        (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                             UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                                    WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                         NON-METHANE HYDROCARBONS[WS: WD]
                                                 3-HOUR(6-9AM)
SITE                   023

 1. 5/23( 6:00- 9:00) 475.6[13:156]
 2. 5/20( 6:00- 9:00) 247.7[ 2:295]
 3. 5/ 2( 6:00- 9:00) 231.1[ 5:166]
 4. 5/22( 6:00- 9:00) 214.0[ 5: 11]
 5. 5/ 8( 6:00- 9:00) 197.2[ 5: 94]
   PRIMARY STANDARD EXCEEDED  19 TIMES AT SITE 023
 SECONDARY STANDARD EXCEEDED  19 TIMES AT SITE 023
--------------------------------------------------------------------------------------------------------------
```

CORPORATION

```
        TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAY    1-31
                  (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                    WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                    CARBON MONOXIDE(WS: WD)
                                       1-HOUR
SITE            023

 1. 5/16(10:55-11:55)1075.2[28:179]
 2. 5/13(10:50-11:50)1010.5[ 3:348]
 3. 5/16(12:05-13:05) 959.8[30:188]
 4. 5/ 5( 9:20-10:20) 901.2[17:201]
 5. 5/13(15:10-16:10) 875.3[ 7:296]
--------------------------------------------------------------------------------------------------
```

```
        TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAY   1-31
                    (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
                 UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                        WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                      CARBON MONOXIDE[WS: WD]
                                         8-HOUR
SITE               023

 1. 5/13( 9:55-17:55) 793.5[ 8:309]
 2. 5/15(10:55-18:55) 778.1[ 9:211]
 3. 5/16( 5:55-13:55) 743.2[23:177]
 4. 5/14(14:55-22:55) 692.7[16:220]
 5. 5/15(19:55- 3:55) 656.2[ 7:170]
------------------------------------------------------------------------------------------------
```

```
    TABLE VI, THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR MAY   1-31
                  (WITH ASSOCIATED WIND SPEED AND WIND DIRECTION)
              UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER: WIND SPEED-MILES PER HOUR:
                     WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH

                                 OZONE[WS: WD]
                                    1-HOUR
SITE             023

 1. 5/17(14:45-15:45) 127.6[20:204]
 2. 5/23(17:15-18:15) 127.3[  :   ]
 3. 5/16(14:35-15:35) 125.0[30:181]
 4. 5/17(15:50-16:50) 124.9[16:201]
 5. 5/23(15:05-16:05) 124.7[20:198]
--------------------------------------------------------------------------------------------
```

```
                    TABLE VI. THE FIVE MAXIMUM AVERAGES FOR MAY   1-31
                   UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER

                                 PARTICULATE
                                   24-HOUR
SITE          023

       1   5/17   67.0
       2   5/24   54.0
       3   5/16   51.0
       4   5/ 5   47.0
       5   5/23   46.0
--------------------------------------------------------------------------------
```

TABLE VII
FUNCTIONAL DEPENDENCE OF RECORDED PARAMETERS UPON WIND DIRECTION

CORPORATION

```
                    NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

          NITROGEN OXIDES(NOX)                                              C-B SHALE OIL PROJECT
                                     TRAILER NO. -  23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                              WIND DIRECTION
                       N   NNE    NE   ENE     E   ESE    SE   SSE     S  SSW    SW   WSW     W   WNW    NW   NNW CALM  TOTAL
 CONCENTRATION
   UG/M**3
    GT    160 :                                                                                                    :

140 -    160 :                                                                                                    :

120 -    140 :                                                                                                    :

110 -    120 :                                                                                                    :

100 -    110 :                                                                                                    :

 90 -    100 :                                                                                                    :

 80 -     90 :                                                                                                    :

 70 -     80 :                                                                                                    :

 60 -     70 :                                                                                                    :

 50 -     60 :                                                                             1                      :     1

 40 -     50 :                                                                             0                      :     0

 30 -     40 :                                1                                            0                      :     1

 20 -     30 :                                0                         1                  0                      :     1

 10 -     20 :     1     2           1        3           5     2       1             2    4     4              :    25

    LT    10 :   246   134   179   164   141   162   379   830  1397  1712  1062   319   248   322   376   271   115 :  8057

     TOTAL   :   247   136   179   165   141   166   379   835  1399  1714  1062   319   248   324   381   275   115 :  8085
             ..................................................................................................................
      MEAN        0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.
```

CORPORATION

```
                   NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

          NITRIC OXIDE(NO)                                                  C-B SHALE OIL PROJECT
                                TRAILER NO. =  23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                            WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
CONCENTRATION
  UG/M**3
  GT   160 :                                                                                     :
140 -  160 :                                                                                     :
120 -  140 :                                                                                     :
110 -  120 :                                                                                     :
100 -  110 :                                                                                     :
 90 -  100 :                                                                                     :
 80 -   90 :                                                                                     :
 70 -   80 :                                                                                     :
 60 -   70 :                                                                                     :
 50 -   60 :                                                                        1            :     1
 40 -   50 :                                                                        0            :     0
 30 -   40 :                                                                        0            :     0
 20 -   30 :                                                                        0            :     0
 10 -   20 :    1    2         1         2         5    2    2                   2    2    1      :    20
  LT    10 :  246  134  179  164  141  164  379  830 1397 1714 1062  319  248  322  378  274  115 : 8066
   TOTAL   :  247  136  179  165  141  166  379  835 1399 1716 1062  319  248  324  381  275  115 : 8087
            ..........................................................................................
                0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.    0.
```

```
                      NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

        NITROGEN DIOXIDE(NO2)                                             C-B SHALE OIL PROJECT
                               TRAILER NO. -  23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                     WIND DIRECTION
                  N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
CONCENTRATION
  UG/M**3
  GT   160 :                                                                                   :
140 -  160 :                                                                                   :
120 -  140 :                                                                                   :
110 -  120 :                                                                                   :
100 -  110 :                                                                                   :
 90 -  100 :                                                                                   :
 80 -   90 :                                                                                   :
 70 -   80 :                                                                                   :
 60 -   70 :                                                                                   :
 50 -   60 :                                                                                   :
 40 -   50 :                                                                                   :
 30 -   40 :                          1                                                        :     1
 20 -   30 :                          0                                                        :     0
 10 -   20 :                          1                        1                    2    3     :     7
   LT   10 :    247  136  179  165  141  164  379  835 1399 1713 1062  319  248  324  379  272  115 : 8077
   TOTAL   :    247  136  179  165  141  166  379  835 1399 1714 1062  319  248  324  381  275  115 : 8085
           ........................................................................................
   MEAN          0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.    0.
```

```
              NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

     SULFUR DIOXIDE(SO2)                                          C-B SHALE OIL PROJECT
                        TRAILER NO. -  23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                  WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
CONCENTRATION
  UG/M**3
  GT   140 :                                                                                      :

130 -  140 :                                                                                      :

120 -  130 :                                                                                      :

110 -  120 :                                                                                      :

100 -  110 :                                                                                      :

 90 -  100 :                                                                                      :

 80 -   90 :                                                                                      :

 70 -   80 :                                                                                      :

 60 -   70 :                                                                                      :

 50 -   60 :                                                                                      :

 40 -   50 :                                                                                      :

 30 -   40 :                                                                                      :

 20 -   30 :                                                                                      :

 10 -   20 :                                                    2                                 :    2

   LT   10 :  259  144  185  173  148  175  391  849 1431 1839 1115  334  256  334  402  295  121 : 8451

   TOTAL   :  259  144  185  173  148  175  391  849 1431 1841 1115  334  256  334  402  295  121 : 8453
           ............................................................................................

   MEAN         0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.    0.
```

```
                    NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

          SULFUR DIOXIDE(SO2)                                                     C-B SHALE OIL PROJECT
                                   TRAILER NO. -  23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                                        WIND DIRECTION
                      N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW CALM   TOTAL
CONCENTRATION
  UG/M**3
  GT    140 :                                                                                                       :

130 -   140 :                                                                                                       :

120 -   130 :                                                                                                       :

110 -   120 :                                                                                                       :

100 -   110 :                                                                                                       :

 90 -   100 :                                                                                                       :

 80 -    90 :                                                                                                       :

 70 -    80 :                                                                                                       :

 60 -    70 :                                                                                                       :

 50 -    60 :                                                                                                       :

 40 -    50 :                                                                                                       :

 30 -    40 :                                                                                                       :

 20 -    30 :                                                                                                       :

 10 -    20 :                                                                                                       :

  LT     10 :   259   144   185   172   148   174   391   848  1430  1840  1118   333   257   334   402   295   121 :  8451

  TOTAL     :   259   144   185   172   148   174   391   848  1430  1840  1118   333   257   334   402   295   121 :  8451
            ..........................................................................................................

  MEAN           0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.     0.
```

```
                      NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

         TOTAL HYDROCARBONS                                                       C-B SHALE OIL PROJECT
                                   TRAILER NO. =  23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                              WIND DIRECTION
                     N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM  TOTAL
  CONCENTRATION
    UG/M**3
    GT  4000 :                                                                                       :

3600 -  4000 :                                                                                       :

3400 -  3600 :                                                                                       :

3200 -  3400 :                                                                                       :

3000 -  3200 :                                         3         1                                   :     4

2800 -  3000 :                                         0         0                                   :     0

2600 -  2800 :                                         0    2    0                                   :     2

2400 -  2600 :                                         1    2    3              1                    :     7

2200 -  2400 :                                         0    0    0              0                    :     0

2000 -  2200 :                                         0    3    1              0                    :     4

1800 -  2000 :                                         1    0    0    1         0                    :     2

1600 -  1800 :                                         0    3    1    0         0                    :     4

    LT  1600 :     137   77  111  118   93  115  249  579 1093 1418  848  236  184  214  255  178   86 :  5991

     TOTAL   :     137   77  111  118   93  115  249  584 1103 1424  849  236  185  214  255  178   86 :  6014
.............................................................................................................

   MEAN/100        11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.  11.   11.
```

CORPORATION

NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

METHANE(CH4)

C-B SHALE OIL PROJECT

TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

CONCENTRATION UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
GT 2400 :																	:	
2200 - 2400 :																	:	
2000 - 2200 :																	:	
1800 - 2000 :																	:	
1600 - 1800 :																	:	
1400 - 1600 :																	:	
1200 - 1400 :								1		1				2			:	4
1000 - 1200 :	7	5	8	3	1		1	7	113	57	29	2	1	10	23	19	3 :	289
800 - 1000 :	130	72	103	115	92	115	248	577	993	1358	818	234	184	202	232	158	83 :	5724
600 - 800 :	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0 :	4
400 - 600 :	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0 :	2
200 - 400 :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0 :	1
LT 200 :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
TOTAL :	137	77	111	118	93	115	249	585	1108	1428	849	236	185	214	255	178	86 :	6024
MEAN	933.	930.	931.	921.	917.	912.	910.	911.	933.	917.	917.	917.	919.	933.	944.	942.	922.	922.

II B-1629

CORPORATION

```
                         NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

          NON-METHANE HYDROCARBONS                                           C-B SHALE OIL PROJECT
                                 TRAILER NO. =  23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                                WIND DIRECTION
                    N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
 CONCENTRATION
   UG/M**3
    GT  3000 :                                                                                      :
 
 2800 -  3000 :                                                                                     :

 2600 -  2800 :                                                                                     :

 2400 -  2600 :                                                                                     :

 2200 -  2400 :                                             1         1                             :      2

 2000 -  2200 :                                             1         0                             :      1

 1800 -  2000 :                                             1    1    0                             :      2

 1600 -  1800 :                                             1    2    2              1              :      6

 1400 -  1600 :                                             0    1    1              0              :      2

 1200 -  1400 :                                             0    3    1              0              :      4

 1000 -  1200 :                                             0    0    0              0              :      0

  800 -  1000 :                                             1    2    1    1         0              :      5

  600 -   800 :                                             0    2    0    0         0         1    :      3

    LT   600 :  137   77  111  118   93  115  249  579 1092 1418  848  236  184  214  255  177   86 :   5989

     TOTAL   :  137   77  111  118   93  115  249  584 1103 1424  849  236  185  214  255  178   86 :   6014
            ..............................................................................................

     MEAN       188. 177. 168. 162. 158. 157. 162. 176. 202. 181. 173. 177. 181. 179. 182. 183. 153. 181.
```

```
                        NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

            CARBON MONOXIDE(CO)                                         C-B SHALE OIL PROJECT
                                TRAILER NO. = 23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                        WIND DIRECTION
                  N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
  CONCENTRATION
    UG/M**3
    GT  4250 :                                                2                                   :     2

3750 -  4000 :                                                0    1                              :     1

3500 -  3750 :                                                0    0                              :     0

3250 -  3500 :                                                0    0                              :     0

3000 -  3250 :                                           1    0    0                              :     1

2750 -  3000 :                                           0    0    0                              :     0

2500 -  2750 :                                           0    1    0                              :     1

2250 -  2500 :                                           0    0    0                              :     0

2000 -  2250 :                                           0    0    0                              :     0

1750 -  2000 :                                           0    0    0                              :     0

1500 -  1750 :                                           0    0    0                              :     0

1250 -  1500 :         1         1                       2    2    0                              :     6

    LT  1250 :  122   67   93  107   85  107  238  565  943 1207  739  230  180  205  227  155   68 :  5338

     TOTAL   :  122   68   93  108   85  107  238  565  946 1212  740  230  180  205  227  155   68 :  5349
              ...............................................................................................

      MEAN     425. 447. 429. 422. 434. 445. 459. 434. 441. 422. 473. 464. 458. 421. 400. 402. 415. 437.
```

```
                    NUMBER OF FIVE MINUTE SAMPLES BY WIND DIRECTION AND LEVEL

       OZONE(O3)                                                           C-B SHALE OIL PROJECT
                           TRAILER NO. -  23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                       WIND DIRECTION
                  N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW CALM   TOTAL
 CONCENTRATION
   UG/M**3
   GT    240 :                                                                                                  :
 220 -   240 :                                                                                                  :
 200 -   220 :                                                                                                  :
 180 -   200 :                                                                                                  :
 160 -   180 :                                                                                                  :
 140 -   160 :                                                                                                  :
 120 -   140 :    5     3     9                 1     1    10   121   169    62     8     7    11    10     4      :   421
 100 -   120 :  114    45    34    27    23    30    89   148   366   657   384   118   129   166   197   131    21 :  2679
  80 -   100 :  115    65   103    89    82    93   236   483   790   835   485   140    87   126   171   125    55 :  4080
  60 -    80 :   23    30    39    55    43    50    65   204   147   174   177    61    34    31    25    34    44 :  1236
  40 -    60 :    0     1     0     0     0     0     0     2     6     5    10     7     0     0     0     1     0 :    32
  20 -    40 :    0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
   LT     20 :    0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     1 :     1
   TOTAL     :  257   144   185   171   148   174   391   847  1430  1840  1118   334   257   334   403   295   121 :  8449
             .............................................................................................................
    MEAN        98.   93.   91.   86.   87.   88.   91.   89.   96.   99.   96.   93.   97.  100.   99.   96.   86.    95.
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TABLE VIII
DIURNAL VARIATION OF VARIOUS RECORDED PARAMETERS

CORPORATION

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                    DIURNAL VARIATION OF NITROGEN OXIDES(UG/M**3)
                      TRAILER NO. - 23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                HOUR
          1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24 MEAN
DAY

  1     *   *   *   *:  *   *   *    :   :                                                               0
  2                 *:  *   *   *   *   *   *:   :  *       *   *   *   *   *   *   *   *   *   *   *    0
  3     *   *   *   *:  *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
  4     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
  5     *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
  6     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
  7     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
  8     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
  9     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 10     *   *   *   *:  *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 11     *   *   *   *:  *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *    0
 12     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 13     *   *   *   *:  *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 14     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 15     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 16     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 17     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 18     *   *   *   *:  *   *   *   *   *   *   *    :   :   :  *   *   *   *   *   *   *   *   *   *    0
 19     *   *   *   *:  *   *   *   *   *   *   *   *:   :  *   *:  *:      *   *   *   *       *        1
 20     *   *        :  *   *           *   *   *   *    :  *   *   *   *   *   *   *   *   *   *   *    0
 21     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 22     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 23     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 24     *   *   *   *:  *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *    0
 25     *   *   *   *:  *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 26     *   *   *   *:  *   *   *   *   *   *   *   *   *:   :  *   *   *   *   *   *   *   *   *   *    0
 27     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 28     *   *   *   *:  *   *   *   *   *   *   *   *   *                   *:  *   *   *   *   *   *    0
 29     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 30     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 31     *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *    0
 MEAN    0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0

                      TOTAL NUMBER OF OBSERVATIONS =   8211.    MEAN  =       0.

              * DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

              : INDICATES CALIBRATION DURING THE HOUR
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CORPORATION

DIURNAL VARIATION OF NITRIC OXIDE(UG/M**3)
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	*	*	*	*:	*	*	*	:	:																0
2				*:	*	*	*	*	*	*:	:	*		*	*	*	*	*	*	*	*	*	*	*	0
3	*	*	*	*:	*	*	*	*:	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
4	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
6	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
7	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
8	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
9	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
10	*	*	*	*:	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
11	*	*	*	*:	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	0
12	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
13	*	*	*	*:	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
14	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
15	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
16	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
17	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
18	*	*	*	*:	*	*	*	*	*	*	*	:	:	:	*	*	*	*	*	*	*	*	*	*	0
19	*	*	*	*:	*	*	*	*	*	*	*	*:	:	*	*:	*:		*	*	*	*		*		0
20	*	*		:	*	*			*	*	*	*	:	*	*	*	*	*	*	*	*	*	*	*	0
21	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
22	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
23	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
24	*	*	*	*:	*	*	*	*	*	*	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	0
25	*	*	*	*:	*	*	*	*:	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
26	*	*	*	*:	*	*	*	*	*	*	*	*	*:	:	*	*	*	*	*	*	*	*	*	*	0
27	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
28	*	*	*	*:	*	*	*	*	*	*	*	*	*					*:	*	*	*	*	*	*	0
29	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
30	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
31	*	*	*	*:	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
MEAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

TOTAL NUMBER OF OBSERVATIONS = 8211. MEAN = 0.

* DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

: INDICATES CALIBRATION DURING THE HOUR

CORPORATION

```
                 DIURNAL VARIATION OF NITROGEN DIOXIDE(UG/M**3)
                   TRAILER NO. = 23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                    HOUR
        1   2   3   4   5   6   7   8   9   10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
DAY

   1    *   *   *   *:  *   *   *    :   :                                                                0
   2                *:  *   *   *   *   *   *:   :  *       *   *   *   *   *   *   *   *   *   *   *     0
   3    *   *   *   *:  *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
   4    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
   5    *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
   6    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
   7    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
   8    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
   9    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  10    *   *   *   *:  *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  11    *   *   *   *:  *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *     0
  12    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  13    *   *   *   *:  *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  14    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  15    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  16    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  17    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  18    *   *   *   *:  *   *   *   *   *   *   *    :   :   :  *   *   *   *   *   *   *   *   *   *     0
  19    *   *   *   *:  *   *   *   *   *   *   *   *:   :  *   *:  *:      *   *   *   *       *         0
  20    *   *        :  *   *           *   *   *   *    :  *   *   *   *   *   *   *   *   *   *   *     0
  21    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  22    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  23    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  24    *   *   *   *:  *   *   *   *   *   *   *   *   *   *:  *   *   *   *   *   *   *   *   *   *     0
  25    *   *   *   *:  *   *   *   *:  *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  26    *   *   *   *:  *   *   *   *   *   *   *   *   *:   :  *   *   *   *   *   *   *   *   *   *     0
  27    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  28    *   *   *   *:  *   *   *   *   *   *   *   *   *                   *:  *   *   *   *   *   *     0
  29    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  30    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
  31    *   *   *   *:  *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *     0
 MEAN    0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0

                     TOTAL NUMBER OF OBSERVATIONS =   8211.    MEAN  =       0.

      * DENOTES A VALID SAMPLE BELOW THE MINIMUM DETECTABLE LIMIT OF THE INSTRUMENT

      : INDICATES CALIBRATION DURING THE HO[illegible]
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RADIAN
CORPORATION

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                         DIURNAL VARIATION OF SULFUR DIOXIDE(UG/M**3)
                          TRAILER NO. - 23  PERIOD( 5/ 1/77 TO  5/31/77)

                                              HOUR
        1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

  1     0    1    2    0:   0    0    0     :   0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
  2     0    0    0    0:   0    0    0    0    0    0:    :   0         0    0    0    0    0    0    0    0    0    0    0      0
  3     0    0    0    0:   0    0    0    0:   0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
  4     0    0    0    0:   0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0      0
  5     0    0    0    0:   0    0    0    0    0:   0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
  6     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
  7     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
  8     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
  9     0    0    0    0:   0    0    0    0    0    1    0    0    0    0    0    0    0    0    0    0    1    1    1    1      0
 10     0    0    1    2:   2    1    0    1    1    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 11     0    0    0    0:   0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0      0
 12     0    0    0    0:   1    0    0    0    1:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 13     0    0    0    0:   0    0    0    0    0:   0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 14     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 15     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 16     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    2    4    4    3    2    5    4    4    3    2      1
 17     1    1    3    0:   0    0    0    1    1    2    2    2    1    0    0    0    0    0    0    0    0    0    0    0      0
 18     0    0    0    0:   0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0      0
 19     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 20     0    0    0    0:   0    0    0    0    0    0    0    0     :   0    0    0    0    0    0    0    0    0    0    0      0
 21     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 22     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 23     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 24     0    0    0    0:   0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0      0
 25     0    0    0    0:   0    0    0    0:   0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 26     0    0    0    0:   0    0    0    0    0    0    0    0    0    0:   0    0    0    0    0    0    0    0    0    0      0
 27     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 28     0    0    0    0:   0    0    0    0    0    0    0    0    0                        0:   0    0    0    0    0    0      0
 29     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 30     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 31     0    0    0    0:   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
 MEAN     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0

                    TOTAL NUMBER OF OBSERVATIONS =    8611.    MEAN  =       0.

             : INDICATES CALIBRATION DURING THE HOUR
```

DIURNAL VARIATION OF SULFUR DIOXIDE(UG/M**3)
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

	HOUR																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	0	0	0	0:	0	0	0	:	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0:	0	0	0	0	0	0:	:	0		0	0	0	0	0	0	0	0	1	1	1	0
3	1	1	1	0:	0	0	0	0:	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0:	0	0	0	0	0	0	0	0	0:	1	1	1	0	1	1	2	2	2	3	3	1
5	3	3	3	3	2	2	3	3	3:	1:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
6	1	1	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	0
7	1	2	2	1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0:	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0:	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0:	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0:	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	3:	2	0	1	2	1	0	0	0	0	0	3	7	7	5	3	3	3	3	4	5	2
17	5	6	6	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	1:	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0:	0	0	0	0	0	0	0	0	:	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	1:	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	2	3	3	0
24	3	3	3	0:	0	0	0	0	0	0	0	0	0	0:	0	1	1	2	2	2	3	3	3	3	1
25	3	3	3	0:	0	0	0	0:	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0:	0	0	0	0	0	0	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0:	0	0	0	0	0	0	0	0	0					0:	0	0	0	0	0	0	0
29	0	0	1	1:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	1:	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
MEAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

TOTAL NUMBER OF OBSERVATIONS = 8609. MEAN = 0.

: INDICATES CALIBRATION DURING THE HOUR

CORPORATION

```
               DIURNAL VARIATION OF TOTAL HYDROCARBONS(UG/M**3 X 10**-1)
                      TRAILER NO. - 23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                  HOUR
         1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24 MEAN
DAY

  1                                    104 105 106 105 105 104 103 104 104 104 102 102 104 102 103 102  104
  2    102 101 101    :104 104 106 108 113 113:   :109:    108 109:    144 149 145 148 151 149 153 155  124
  3    155 152 150    :154 153 148 140:100:101 102 105 108 109 110:   :                              129
  4                   :           :   :   :110 106 107 107 108 108 108 108 107 110 109 108 107 107  108
  5    107 108 107 106 105 105 106 107 111 111:108 108 108 108 107 106 106 105 105 104 105 102 106 104  106
  6    103 102 103    :104 105 106 106 107 105 104 106 106 107 105 106 107 106 106 104 104 104 105 105  105
  7    104 104 104    :104 104 105 109 106 106 107 108 109 110 109 108 109 109 107 107 107 107 106 106  107
  8    106 105 105    :104 104 106 110 112 113 112 111 108 101 105 107 108 109 109 108 108 108 107 106  107
  9    106 106 109    :106 107 106 108 110 110 104 102 104 106 107 105 106 108 108 107 107 106 108 108  107
 10    108 105 105    :105 106 106 109 107 104 102 104 108 110 112 111 111 110 110 107 106 106 106 106  107
 11    107 107 107    :107 107 108 111 114 114 106 105 108 110 108 110 111 112 111 110 110 110 109 109  109
 12    109 110 110    :109 108 110 112 112:102 107 109 110 111 111 112 113 105 105 105 107 106 107 106  108
 13    106 107 107    :107 107 109 110 110  99 104 106 108 109 112 113 112 126 105 104 104 105 105 105  108
 14    104 104 104    :105 104 105 106 107 107 107 107 109 111 109 109 108 108 106 106 107 106 107 105  107
 15    106 106 106    :107 107 108 111 112 114 114 113 112 113 111 111 107 106 106 106 107 106 105 105  109
 16    105 105 104    :104 103 106 111 109 104 105:106 106 109 124 125 115 111 109 108 105 105 104 104  108
 17    106 105 105    :106 106 107 107 102 105 107 108 108 110 104 101 104 106 107 108 108 106 108 109  106
 18    107 107 105    :105 107 109 113 108:   :   :   :110:  99 102 105 107 109 109 108 105 105 103 102  106
 19    104 104 103    :105 105 107 110 114 115 115 114 113 115 112 107 109 109 110 109 107 109 111 105  109
 20    107 105 107    :111 110 113 129 126 121 121 119    :105 102 105 107 110 109 109 107 107 108 107  111
 21    107 107 106    :108 107 108 112 115 115 116 116 115 116 115 116 115 114 113 111 110 109 108 108  112
 22    108 108 107    :107 107 110 112 116 115 115 114 114 114 113 113 112 110  99 100 102 104 105 107  109
 23    108 108 108    :109 108 180 112 119 180 112 154 124 110 197 116 102 147 175 106 162 109 101 142  127
 24                   :                               :   :
 25                   :           :   :                   :   :       :   :
 26                   :                               :   :
 27                   :
 28                   :                                                   :
 29                   :
 30                   :
 31                   :                                       :129 134 136 138 139 139 139 139 131  136
MEAN   108 108 108 106 108 108 113 111 111 111 109 111 109 109 111 110 111 114 112 110 111 109 109 110

                  TOTAL NUMBER OF OBSERVATIONS =   5980.    MEAN  =    111.

         : INDICATES CALIBRATION DURING THE HOUR
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CORPORATION

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                    DIURNAL VARIATION OF METHANE(UG/M**3 X 10**-1)
                    TRAILER NO. - 23  PERIOD( 5/ 1/77 TO  5/31/77)

                                          HOUR
      1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24 MEAN
DAY

  1                                  87  87  87  87  87  86  86  87  86  86  86  87  89  88  87  87   87
  2  87  86  86    : 86  86  86  86  86  87:   : 86:     83  76:    118 118 118 118 118 117 118 118   98
  3 117 117 118    :117 117 117 117: 88: 89  89  89  89  89  86:   :                                 103
  4                :               :   :   : 90  91  91  90  90  90  90  90  91  91  92  91  91  92   91
  5  91  93  92  92  91  91  92  91  91  91: 90  90  90  89  89  89  89  88  88  88  88  88  87  88   90
  6  87  87  87    : 89  89  88  89  89  89  89  90  90  90  89  89  90  89  90  89  90  89  90  89   89
  7  90  90  90    : 89  89  90  90  90  90  90  90  90  90  90  90  91  91  91  90  90  90  90  90   90
  8  90  90  90    : 90  90  89  90  90  90  90  90  91  91  91  90  90  91  91  90  90  91  90  90   90
  9  91  91  91    : 90  90  90  90  90  90  90  90  90  90  90  90  90  91  91  90  90  89  89  90   90
 10  90  91  91    : 91  91  91  91  91  91  91  91  91  92  92  93  93  93  93  93  93  93  93  92   92
 11  92  93  93    : 93  93  93  92  93  93  93  93  93  93  93  93  93  94  94  94  94  94  94  94   93
 12  94  94  94    : 94  94  93  93  93: 91  93  93  92  92  92  92  92  91  91  91  91  91  91  91   92
 13  91  91  91    : 90  90  90  90  90  90  90  91  91  90  90  90  90  90  89  89  89  89  89  89   90
 14  89  89  89    : 90  90  90  90  90  90  90  90  90  90  90  90  90  90  90  90  90  90  90  90   90
 15  90  91  91    : 91  91  91  91  91  91  91  91  91  91  91  91  90  91  90  90  91  90  91  90   91
 16  90  90  91    : 91  91  91  91  92  91  91: 91  92  92  91  92  92  91  91  91  91  91  92  92   91
 17  93  92  93    : 92  92  92  92  93  92  91  91  91  92  93  92  92  92  92  92  92  92  92  92   92
 18  92  91  91    : 91  92  93  91  91:   :   :   : 91: 91  91  91  91  91  91  91  91  91  91  91   91
 19  91  91  90    : 91  91  91  91  91  91  92  91  91  91  91  92  92  92  92  93  92  93  96  92   92
 20  92  91  92    : 92  92  92 103  98  94  94  92    : 91  84  92  92  92  92  92  92  92  91  92   92
 21  92  92  92    : 91  92  91  93  94  92  92  92  93  93  93  92  92  92  92  92  92  92  92  92   92
 22  92  92  92    : 91  91  91  91  91  91  91  91  91  91  91  91  91  91  91  91  91  90  91  91   91
 23  90  91  90    : 89  89  90  88  88  86  88  86  84  86  84  83  85  87  81  85  86  79  83  81   86
 24                :                                   :   :
 25                :               :   :                       :   :       :   :
 26                :                                   :   :
 27                :
 28                :                                                       :
 29                :
 30                :
 31                :                                           :115 117 116 117 116 116 116 116 116  116
MEAN 92  92  92  92  92  92  92  92  91  90  91  90  90  90  90  91  93  93  93  93  93  93  93  92

                    TOTAL NUMBER OF OBSERVATIONS =    6002.    MEAN  =      92.

          : INDICATES CALIBRATION DURING THE HOUR
```

DIURNAL VARIATION OF NON-METHANE HYDROCARBONS(UG/M**3 X 10**-1)
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1									18	19	19	18	19	17	17	18	18	18	16	15	15	14	16	15	17
2	14	14	15	:	18	18	20	23	26	26:	:	22:		25	33:		27	31	27	30	34	32	35	37	25
3	37	35	32	:	36	36	31	23:	12:	12	12	16	19	21	24:	:									25
4				:				:	:	:	19	16	16	17	18	18	18	18	17	18	17	16	15	15	17
5	16	15	14	14	14	13	14	16	21	20:	18	19	19	18	18	18	17	16	17	16	17	15	18	17	17
6	16	14	15	:	15	17	18	18	18	16	15	16	17	18	15	17	17	17	16	15	14	15	16	16	16
7	15	15	14	:	15	15	16	19	17	16	17	18	19	20	19	19	19	19	17	17	17	16	17	16	17
8	16	16	15	:	15	15	16	20	22	23	22	20	18	10	14	17	18	19	18	17	18	17	17	15	17
9	16	16	18	:	16	16	16	18	20	20	14	12	14	17	18	15	16	17	18	17	17	17	19	19	17
10	18	14	15	:	15	15	16	18	15	13	11	13	16	18	19	18	18	17	17	14	13	14	14	14	15
11	15	14	14	:	14	13	15	18	21	21	13	12	14	16	15	17	18	18	17	16	16	16	15	15	16
12	15	16	16	:	15	14	17	19	18:	11	14	16	18	18	19	19	21	13	13	14	15	15	16	16	16
13	16	16	17	:	17	17	19	20	19	9	13	16	18	19	21	22	22	36	16	15	15	15	16	16	18
14	15	15	15	:	15	15	15	16	17	17	17	17	19	21	19	18	18	17	17	17	17	16	17	15	17
15	15	16	16	:	17	17	16	19	21	22	22	21	20	22	20	20	17	16	16	16	17	16	15	15	18
16	14	15	14	:	13	13	15	20	17	13	14:	14	14	17	32	33	22	20	19	17	14	13	12	12	17
17	12	12	12	:	14	14	15	14	9	12	15	17	17	18	11	9	12	14	15	16	15	14	16	16	14
18	16	15	14	:	14	15	16	22	16:	:	:	:	19:	8	11	14	16	18	17	17	14	14	12	11	15
19	13	14	13	:	14	14	16	19	22	23	23	22	22	23	21	15	17	17	18	16	15	17	15	13	17
20	15	14	14	:	19	18	20	26	28	27	27	27	:	13	17	13	15	18	16	17	15	16	16	15	19
21	15	15	15	:	16	15	17	19	21	22	23	23	22	23	22	22	22	22	21	19	18	17	16	17	19
22	16	16	16	:	17	16	19	21	24	23	23	22	23	23	22	23	21	19	8	8	11	13	14	17	18
23	18	18	17	:	19	19	90	24	32	95	24	68	40	23	114	33	16	59	96	21	73	30	17	61	40
24				:									:	:											
25				:				:	:						:	:		:	:						
26				:									:	:											
27				:																					
28				:														:							
29				:																					
30				:																					
31				:											:	14	17	20	21	23	23	23	23	15	20
MEAN	16	16	16	14	17	17	20	20	20	21	18	20	19	18	22	19	18	21	19	17	18	17	17	17	

TOTAL NUMBER OF OBSERVATIONS = 5978. MEAN = 19.

: INDICATES CALIBRATION DURING THE HOUR

CORPORATION

```
DIURNAL VARIATION OF CARBON MONOXIDE(UG/M**3 X 10**-1)
        TRAILER NO. = 23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                      HOUR
        1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

   1
   2
   3
   4                                                    37   38   38   39   39   39   38   38   38   39   39   39   37   38    38
   5   38   38   38   39   39   39   39   40   39  105:  41   41   40   39   40   39   39   38   37   39   39   38   40   38    41
   6   39   39   38     :  37   37   37   38   38   38   37   38   39   38   39   39   39   39   38   38   38   37   37   38    38
   7   38   38   38     :  36   35   36   35   36   35   35   36   35   36   35   35   36   35   35   35   36   35   35   36    36
   8   35   35   34     :  35   36   35   35   36   36   35   35   34   35   35   36   34   35   34   34   34   35   36   35    35
   9   34   34   35     :  35   35   35   36   36   35   35   35   36   35   36   36   36   35   35   34   36   35   36   35    35
  10   36   36   37     :  37   38   38   38   38   38   38   38   38   39   39   39   39   39   38   39   39   39   38   37    38
  11   38   37   38     :  40   40   41   39   41   40   40   46   45   42   40   40   40   40   38   40   40   39   38   37    40
  12   37   39   38     :  40   39   39   40   40:  77   49   61   61   56   58   63   63   80   55   46   46   45   44   44    51
  13   42   43   46     :  39   41   43   38   36   44   78  100   75   70   75   83   82   67   69   59   54   57   55   56    59
  14   54   56   58     :  57   53   60   58   54   57   56   61   54   61   65   73   66   72   67   73   65   69   66   67    62
  15   62   65   68     :  66   65   74   60   67   69   67   76   76   78   78   76   84   74   76   70   72   64   66   64    70
  16   65   65   61     :  51   58   54   53   57   64   77: 107   93   86   42   37   36   34   33   32   33   33   32   31    53
  17   31   31   31     :  31   30   30   31   33   32   32   31   31   31   32   29   29   28   26   25   25   26   25   24    29
  18   24   24   24     :  23   23   23   23   23:    :    :    :  94:  33   33   33   32   34   34   33   33   33   32   31    31
  19   32   31   32     :  33   31   32   33   34   32   33   33   33   32   33   32   33   33   32   32   32   33   33   32    33
  20   32   31   32     :  31   32   30   32   31   32   32   32     :  35   41   49   51   52   52   53   55   55   55   56    41
  21   56   56   55     :  53   53   52   51   50   51   51   52   50   50   50   48   48   48   48   46   46   46   44   45    50
  22   45   43   43     :  43   42   42   43   41   43   42   41   42   42   41   41   40   40   40   40   39   39   38   38    41
  23   38   38   38     :  38   37   55   42   41   48   48   46   47   40   37   46   36   43   54   41   47   48   36   42    43
  24                  :                                             :    :
  25                  :                   :    :                             :    :         :    :
  26                  :                                             :    :
  27                  :
  28                  :                                                                     :
  29                  :
  30                  :
  31                  :                                                        :
MEAN   41   41   41   39   40   40   42   40   41   48   45   50   50   46   44   46   45   45   44   42   42   42   41   41

                    TOTAL NUMBER OF OBSERVATIONS =    5351.    MEAN  =     44.

             : INDTCATES CALIBRATION DURING THE HOUR
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CORPORATION

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                    DIURNAL VARIATI  OF OZONE(UG/M**3)
                  TRAILER NO. = 23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                 HOUR
          1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
DAY

  1      83  86  86  78: 78  80  81    : 88: 89  92  93  90  90  86  88  94  93  87  81  70  71  66  69    83
  2      72  72  72  74: 73  74  70  73  87  89:   : 94      94  96  97 100 100  96  89  84  90  88  92    85
  3      91  85  89  81: 82  81  77  81: 80: 81  85  87  86  90  96  98  97  97  97  94  87  89  85  91    88
  4      91  85  86  83: 83  81  67  82  94  99 100 101 101 103 108 110 108 107 105 104 101  98  87  85    95
  5      78  75  75  78  77  78  79  83  99 103:102 102 100  98  95  93  86  84  86  86  84  78  81  81    87
  6      79  71  70  82: 83  85  84  85  86  86  86  89  93  93  92  92  91  91  90  86  81  80  82  80    85
  7      79  78  77  74: 74  76  81  88  88  92  92  96  98 101 102 104 106 108 102  97  90  84  81  78    89
  8      83  80  79  79: 75  73  66  72  91  96  93  88  90  92  93  94  96  99  99  92  84  87  86  85    86
  9      84  81  77  70: 69  70  71  76  79  80  79  81  84  85  86  86  87  86  87  84  76  76  74  78    80
 10      76  79  82  90: 93  93  94 106 107 122:118 115 119 116 117 116 117 118 116 110 103  97  99 101   104
 11     101 100 102 103:103 102  89  95 110 112 111:115 116 116 116 117 117 118 121 111 102 105 102 105   108
 12     108 106 103 104:102 102  91 101 117:118 120 121 121 119 116 116 115 107 104 103 104 101  98  90   108
 13      84  83  82  83: 88  90  88  93  99:104 104 105 104 104 105 104 103  90  85  77  67  70  63  66    89
 14      69  70  65  81: 87  76  79  82 104 106 107 108 111 101  99 101 101 101  97  95  93  88  85  85    91
 15      84  84  79  75: 72  72  73  85  89 100 104 100  97  99 102 103  95  86  95  89 104  99  99  93    91
 16      80  78  80  78: 82  82  92 119 123 113 112 114 114 120 123 124 123 118 113 111 110 107 116 112   107
 17     108 107 108 106:103  96 103 107 117 117 120 121 121 121 126 127 124 118 111 105 105 105 102 104   112
 18     106 106  94  90: 96  87  91 113 115 117 116 119 118 115 114 110 106 108 105  99  93  88  79  80   103
 19      82  82  81  86: 78  80  75  81  95  93  92  91  91  92  90  91  90  88  82  75  72  81  80  72    84
 20      70  68  64  71: 69  66  68  75  79  83  87  89    : 95  96  98 103  97  93  94  93  89  83  83    83
 21      84  82  81  75: 74  76  67  85  93  97  97  98 105 106 107 106 106 108 106 100  90  94  94  94    93
 22      97  92  98  93: 89  90  80  86 101 105 104 106 106 105 106 103 105 104 103  95  85  91  94  94    97
 23      92  88  88  95: 98  95  96 100 117 122 121 119 115 120 123 124 122 126 123 114 106 104 101 104   109
 24     102 101 103  99:100 101 103 103 103 104 106 107 107 110:109 107 104 103  97  94  89  89  87  89   101
 25      91  91  88  80: 78  70  75  87: 89: 93  99 104 107 112 115 106 104 103 101  94  78  73  64  69    91
 26      66  65  80  86: 92  91  93 100 105 104 117 117 119 117:117 121 115 115 106 104  99  94  85  73    99
 27      74  76  83  88: 82  74  90 118 120 122 123 118 124 119 121 119 119 119 115 112 109  94  95 101   105
 28      94  99 107 105: 97  95 102 107 112 119 110 102  92                 109:100  94  92  85  87  74    99
 29      63  59  64  72: 72  73  73  92 106 114 114 113 117 120 119 118 118 114 111 109 102  98 100 100    98
 30      97  90  81  72: 78  73  86  84 102 107 111 110 118 119 116 117 116 116 114 107  96  93  95  93   100
 31      97  95  97  94: 90  94  75  83 101 106  93  96  90  91  92  92  91  84  83  81  71  71  74  78    88
 MEAN     86  84  84  85  84  83  82  92 100 103 104 104 105 105 106 106 105 104 101  96  91  89  87  87

                   TOTAL NUMBER OF OBSERVATIONS =   8607.     MEAN  =     95.

         : INDICATES CALIBRATION DURING THE HOUR
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RADIAN CORPORATION HOURLY TOTAL PRECIPITATION(HUNDREDTHS OF INCHES)
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	5
14	0	0	0	3	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	11	0	0	8	0	0	0	0	0	20
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL!	0	0	0	3	5	1	0	0	2	0	0	0	1	0	0	11	0	5	8	0	0	0	0	0	

TOTAL NUMBER OF OBSERVATIONS = 8848. TOTAL = 36.

! INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF WIND SPEED AT 8 FEET(MPH)
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

	HOUR																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	3	2	5	1	4	1	4	14	14	12	15	14	14	14	12	14	12	9	5	1	1	1	1	2	7
2	0	0	2	1	1	1	0	2	10	9	12	10		13	11	12	11	10	6	2	3	3	5	8	6
3	8	4	7	6	6	6	4	7	13	10	14	15	14	15	17	12	17	11	9	4	5	11	11	11	10
4	12	7	6	4	2	2	4	8	9	9	11	10	9	8	9	13	14	14	9	9	4	2	1	0	7
5	2	1	2	2	2	1	0	3	13	13	14	17	20	18	17	18	17	15	15	13	15	7	15	11	10
6	7	6	10	13	9	14	14	18	19	17	18	18	16	18	15	16	15	12	10	5	5	6	8	7	12
7	6	6	5	5	6	5	6	11	12	15	12	11	13	16	18	17	15	13	5	2	3	3	3	2	9
8	1	2	3	1	1	1	1	2	8	12	12	16	16	14	15	14	14	13	10	5	5	5	4	1	7
9	1	3	8	6	4	6	5	6	11	11	10	11	13	11	11	12	13	11	8	2	3	4	9	11	8
10	10	4	3	1	3	4	7	11	8	12	9	9	10	14	17	16	15	10	9	4	3	4	3	2	8
11	1	1	1	2	0	2	0	4	11	11	12	15	14	12	11	12	11	8	6	3	3	4	3	1	6
12	1	3	5	0	1	1	2	2	6	9	14	17	12	11	9	6	10	16	17	11	11	7	7	4	8
13	3	5	1	3	2	2	2	2	2	3	3	2	2	7	6	6	5	18	6	1	3	1	3	5	4
14	2	3	2	3	3	1	1	1	2	2	5	5	6	11	9	11	13	11	10	12	15	13	12	10	7
15	7	7	3	2	3	4	4	7	9	11	10	7	6	12	7	9	4	2	5	5	6	7	8	4	6
16	3	1	2	3	2	3	5	16	17	17	17	23	25	26	24	24	21	20	19	21	11	8	7	3	13
17	3	1	1	1	1	1	1	6	20	20	19	20	18	20	18	17	12	9	6	5	4	3	3	2	9
18	2	1	0	1	0	2	4	13	15	17	18	16	14	15	13	12	12	12	9	7	2	1	2	2	8
19	1	2	1	2	2	2	0	3	7	8	6	5	7	5	6	8	5	6	4	2	3	8	4	1	4
20	1	1	1	1	1	0	0	1	3	5	6	7	4	9	4	9	7	12	5	7	2	3	3	3	4
21	0	2	2	0	1	0	1	2	5	5	6	7	8	8	7	7	6	6	5	2	4	2	1	0	4
22	0	1	1	1	2	0	1	2	7	10	8	7	7	7	8	9	8	7	5	3	3	2	1	6	5
23	5	2	2	2	2	4	6	8	15	17	16	17	17	16	16	16	9								10
24								12	13	14	17	18	21	20	18	18	12	10	10	9	5	9	3	5	13
25	3	3	3	3	2	1	2	7	11	12	11	15	13	15	14	13	13	13	11	4	2	1	1	1	7
26	0	2	4	6	10	7	3	1	4	7	9	8	10	10	10	9	8	4	4	6	1	3	2	1	5
27	2	1	2	1	2	3	3	10	7	8	11	7	11	10	4	4	3	3	2	3	1	1	1	2	4
28	3	4	2	2	4	3	6	9	11	12	10	5	6					7	2	2	2	2	1	1	5
29	2	0	1	1	1	0	1	2	4	10	10	10	11	14	13	15	15	14	12	9	5	5	4	4	7
30	2	2	2	2	1	1	0	3	3	5	6	6	8	10	9	9	7	5	4	2	1	1	1	1	4
31	1	1	1	1	1	1	1	1	3	3	5	6	7	5	5	5	4	8	7	4	1	3	0	0	3
MEAN	3	3	3	3	3	3	3	6	9	10	11	11	12	13	12	12	11	10	8	5	4	4	4	4	

TOTAL NUMBER OF OBSERVATIONS = 8671. MEAN = 7.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND SPEED AT 30 FEET(MPH)
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	6	5	8	2	6	1	5	18	18	15	19	18	18	17	16	17	15	12	8	3	2	3	2	3	10
2	1	0	2	2	1	2	1	3	12	11	15	13		16	15	15	14	14	9	5	6	6	9	13	8
3	12	8	11	9	10	10	7	10	16	13	17	19	18	19	22	17	23	15	12	6	8	15	15	14	14
4	15	10	9	6	4	4	6	11	12	11	15	14	12	11	12	17	18	17	12	13	7	4	3	1	10
5	2	3	3	4	4	2	1	4	17	17	18	21	25	23	22	22	22	20	19	17	19	11	20	15	14
6	10	10	14	18	13	18	18	23	24	22	23	23	20	22	19	20	19	16	13	7	9	10	12	11	16
7	10	10	9	9	10	9	9	15	16	19	16	15	16	20	22	22	20	17	8	5	3	3	4	4	12
8	2	3	5	2	3	1	2	2	11	15	16	20	20	18	18	19	18	16	13	8	9	9	7	2	10
9	3	6	12	10	9	11	8	9	15	13	12	14	17	15	15	15	16	15	11	5	7	.8	13	15	11
10	14	6	5	3	5	7	9	15	11	15	12	11	13	19	21	21	18	14	12	6	6	6	5	4	11
11	1	2	1	3	0	4	1	5	15	15	16	19	17	15	15	16	15	11	9	6	6	7	5	2	9
12	1	6	9	1	2	2	2	3	8	11	17	21	16	14	12	9	14	21	22	15	16	11	10	7	10
13	6	8	3	4	4	3	3	3	3	4	4	3	3	9	8	7	7	23	9	2	5	3	6	8	6
14	4	6	3	5	5	3	2	1	3	3	7	6	8	15	11	14	17	16	13	15	19	17	16	13	9
15	10	10	5	4	5	6	6	9	11	14	14	10	8	15	9	13	7	3	7	8	9	10	12	7	9
16	6	2	3	5	5	6	7	21	21	21	22	28	31	33	29	30	26	25	25	26	14	11	11	5	17
17	5	3	3	3	2	2	2	8	25	24	24	26	22	24	22	21	15	11	8	8	6	5	6	4	12
18	4	3	2	2	1	3	6	17	20	22	22	20	17	19	17	16	16	15	12	11	4	3	2	3	11
19	3	3	2	2	4	3	1	4	9	10	8	6	8	7	9	9	7	9	6	3	6	12	7	3	6
20	3	2	1	2	2	1	1	2	4	7	7	9	6	12	6	12	9	16	7	10	5	4	4	4	6
21	2	4	4	2	2	2	2	3	7	7	9	9	10	10	9	10	7	8	7	4	6	4	1	1	5
22	1	2	3	2	3	1	2	3	10	12	11	.9	10	9	11	12	11	10	8	6	6	5	4	10	7
23	8	5	4	3	5	7	9	12	19	21	20	21	22	21	21	20	12								13
24								16	17	18	21	23	27	26	23	22	15	13	13	12	8	13	6	8	16
25	6	5	5	5	3	3	4	9	14	15	15	19	18	20	18	17	17	17	15	7	4	1	2	2	10
26	1	4	7	10	14	11	6	3	6	10	13	11	13	13	14	12	11	5	6	10	2	5	5	2	8
27	4	3	3	4	3	4	4	13	9	11	15	10	14	13	6	6	4	4	4	5	2	3	2	3	6
28	6	7	4	4	6	6	8	13	15	15	14	7	8					11	4	4	4	4	2	1	7
29	3	2	1	2	2	1	2	4	5	13	12	13	15	18	16	20	19	18	16	12	8	8	7	6	9
30	4	4	4	4	2	3	1	4	5	6	8	8	10	13	12	11	9	7	7	5	2	3	1	3	6
31	1	1	0	2	2	1	1	2	4	5	7	9	9	7	7	7	6	10	10	8	2	4	1	1	5
MEAN	5	5	5	4	5	5	5	9	12	13	14	15	15	16	15	16	14	14	11	8	7	7	7	6	

TOTAL NUMBER OF OBSERVATIONS = 8671. MEAN = 10.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN CORPORATION

DIURNAL VARIATION OF WIND SPEED AT 100 FEET(MPH)
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	9	9	11	1	9	2	8	21	21	17	22	20	20	19	18	20	18	14	10	5	3	4	2	3	12
2	0	0	0	0	0	1	1	3	14	13	17	14		19	17	17	16	16	11	8	10	10	13	16	9
3	17	13	16	15	14	12	11	12	18	15	20	22	21	22	25	19	26	17	14	8	11	18	18	17	17
4	18	12	12	7	7	5	9	12	14	13	17	16	13	12	14	20	22	21	15	16	9	6	3	1	12
5	3	3	2	3	3	3	1	5	19	19	20	24	28	27	25	25	25	22	22	20	23	13	24	18	16
6	13	14	17	21	16	21	21	26	27	25	26	26	23	26	22	23	22	19	16	10	11	13	16	14	19
7	13	13	12	13	14	12	11	16	18	21	18	17	18	23	25	25	22	20	10	6	1	3	4	4	14
8	2	4	7	5	4	1	0	2	12	17	18	22	23	20	20	21	21	19	16	12	14	13	12	4	12
9	7	10	16	14	12	13	10	10	17	15	14	16	19	17	17	17	18	17	13	7	11	12	16	18	14
10	17	7	7	4	6	8	11	18	13	18	14	13	15	21	25	24	21	16	15	8	7	8	8	9	13
11	3	1	1	2	2	5	3	6	17	16	18	21	19	17	16	19	17	14	11	7	10	10	6	1	10
12	2	10	13	4	1	2	2	4	9	12	19	24	18	16	13	10	15	24	25	18	19	14	13	11	12
13	10	12	4	6	8	3	4	4	3	4	5	3	4	10	9	8	8	27	12	2	6	4	7	11	7
14	5	8	4	8	6	3	2	2	4	3	8	7	9	18	14	17	20	19	16	19	23	21	20	16	11
15	13	12	7	4	7	9	8	10	14	16	16	11	10	17	11	16	8	4	9	10	11	13	15	10	11
16	9	2	5	9	9	8	9	23	23	24	25	32	35	38	33	34	30	29	29	31	18	14	12	5	20
17	5	3	3	3	1	3	3	9	28	28	27	30	25	28	25	24	17	13	9	10	8	5	7	5	13
18	7	4	3	2	1	4	7	19	22	25	26	23	20	22	19	18	18	17	14	12	5	3	2	2	12
19	1	1	2	2	3	3	2	4	10	12	9	7	9	7	10	10	8	10	8	5	7	15	9	3	6
20	4	2	1	2	2	1	1	2	5	8	8	10	7	13	6	13	10	17	9	13	7	7	5	5	7
21	3	3	3	4	4	1	2	3	8	7	10	10	11	11	10	11	8	9	7	5	8	5	2	1	6
22	1	3	2	3	3	1	2	3	11	14	12	10	11	11	12	14	12	12	10	10	10	7	7	14	8
23	12	5	3	3	6	9	10	13	21	24	23	24	24	24	24	23	15								15
24								19	19	21	24	26	31	30	26	26	18	15	15	14	9	14	7	9	19
25	7	6	7	6	4	4	5	10	15	17	17	22	20	22	21	20	20	20	18	9	5	2	2	3	12
26	2	4	8	13	17	13	7	3	7	12	16	13	14	15	15	14	13	6	8	12	2	6	8	3	10
27	5	2	3	6	3	6	5	15	11	13	17	11	16	15	6	6	4	5	5	6	2	5	3	2	7
28	8	9	5	4	8	9	9	14	17	17	16	7	11					13	5	5	5	5	3	1	9
29	3	2	1	2	3	2	3	4	6	14	13	14	17	20	19	23	22	21	18	14	10	10	8	7	11
30	6	4	2	4	2	2	2	4	5	7	9	8	11	15	13	13	10	8	8	8	3	3	2	2	6
31	0	3	0	1	3	1	0	2	4	5	8	10	10	8	7	8	7	12	12	11	2	3	1	0	5
MEAN	7	6	6	6	6	6	6	10	14	15	16	17	17	19	17	18	16	16	13	11	9	9	9	7	

TOTAL NUMBER OF OBSERVATIONS = 8671. MEAN = 12.

: INDICATES CALIBRATION DURING THE HOUR

CORPORATION

DIURNAL VARIATION OF WIND SPEED AT 200 FEET(MPH)
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	11	14	15	3	11	6	11	24	23	19	24	22	22	21	20	22	19	15	11	5	4	5	1	2	14
2	1	0	0	0	1	0	1	3	15	13	18	15		19	18	18	17	17	13	8	12	11	15	16	10
3	17	14	18	17	16	12	11	13	20	16	22	23	23	23	26	20	28	18	15	8	14	20	21	19	18
4	21	14	14	8	8	7	13	13	14	13	18	16	13	13	15	21	23	23	16	17	11	7	5	1	13
5	3	4	3	2	1	3	1	5	21	21	21	25	30	29	27	27	27	24	24	22	26	16	27	20	17
6	16	15	20	24	18	23	23	28	29	27	28	28	25	28	24	25	24	21	17	12	11	14	16	15	21
7	15	15	14	14	14	14	12	17	19	22	19	17	20	25	26	27	24	22	12	9	1	2	3	3	15
8	1	2	7	8	5	1	2	2	12	17	19	23	24	20	21	22	23	20	19	15	15	14	12	8	13
9	11	15	18	16	13	14	12	10	17	15	15	17	20	18	18	19	19	18	14	9	14	14	19	21	16
10	20	8	9	5	7	10	12	19	13	19	15	14	16	23	27	25	22	16	16	10	7	7	9	9	14
11	5	2	2	2	3	6	5	5	18	17	19	21	20	18	18	20	19	15	13	7	10	10	6	1	11
12	2	13	14	6	2	5	5	4	9	13	20	25	19	17	14	10	16	26	28	20	23	16	16	13	14
13	12	13	6	7	8	2	3	3	3	4	4	3	4	10	9	8	8	32	14	2	7	6	7	13	8
14	6	8	6	10	7	4	2	2	3	3	8	7	9	19	15	19	22	21	18	22	26	24	23	20	13
15	16	14	9	5	9	11	10	11	15	17	16	11	10	19	12	17	9	5	11	13	15	16	19	12	13
16	10	4	6	11	11	9	11	25	25	25	28	34	38	41	36	37	33	32	32	35	20	15	13	5	22
17	6	4	3	3	0	3	2	10	31	30	29	33	27	30	27	26	19	13	9	11	9	6	8	6	14
18	7	4	5	2	1	3	6	21	24	27	27	25	20	23	20	19	20	18	15	13	6	2	2	2	13
19	1	1	1	1	1	4	2	4	10	12	9	7	9	7	9	10	7	11	8	5	7	15	10	3	6
20	3	1	1	1	1	1	0	2	5	8	9	10	7	14	6	13	10	18	9	14	9	9	7	6	7
21	4	2	3	3	6	2	1	3	7	7	10	10	11	11	11	11	9	10	7	5	8	7	3	1	6
22	1	2	1	2	2	2	2	2	12	15	12	11	11	11	13	14	13	13	11	11	10	10	11	16	9
23	15	5	3	4	7	8	12	14	22	26	25	25	26	26	27	25	16								17
24								21	20	23	26	28	33	33	28	27	19	16	16	15	9	15	8	10	20
25	7	6	7	6	4	3	6	11	16	18	18	23	21	23	23	21	21	21	19	10	5	4	3	4	12
26	2	4	8	16	20	15	7	2	8	12	18	13	15	16	16	15	13	6	8	13	2	6	7	4	10
27	5	1	2	6	3	6	5	17	11	14	18	11	16	15	6	6	4	4	5	7	2	7	3	2	7
28	7	11	5	3	8	11	10	15	17	18	17	8	11					13	5	5	5	5	3	2	9
29	1	2	0	1	3	3	4	4	6	15	14	15	18	21	20	25	25	22	19	15	12	11	9	8	11
30	6	4	1	4	1	1	1	3	4	7	9	9	12	15	13	13	10	8	8	9	4	2	3	1	6
31	1	1	0	1	4	0	1	2	3	5	8	10	10	7	7	8	7	12	12	12	3	0	1	0	5
MEAN	8	7	7	6	6	6	6	10	15	16	17	17	18	20	18	19	17	17	14	12	10	10	10	8	

TOTAL NUMBER OF OBSERVATIONS = 8671. MEAN = 13.

: INDICATES CALIBRATION DURING THE HOUR

CORPORATION

DIURNAL VARIATION OF WIND DIRECTION AT 8 FEET
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	189	169	218	82	154	40	176	198	208	203	211	201	202	203	213	204	215	213	231	58	173	174	216	206	192
2	186	208	227	133	219	203	95	3	211	217	211	213		220	226	212	218	223	231	215	219	200	195	182	207
3	183	199	193	203	190	189	195	177	200	215	220	209	207	181	177	169	189	169	172	159	166	195	175	196	188
4	189	175	210	225	227	229	291	315	299	310	309	297	301	279	259	230	221	236	290	327	317	297	224	200	261
5	222	241	224	229	229	200	117	103	199	210	207	205	216	204	206	202	200	192	198	204	212	188	213	208	203
6	201	172	175	173	173	183	186	189	192	209	202	208	206	200	203	211	208	206	202	191	178	184	177	175	191
7	174	174	172	167	161	168	152	172	188	185	164	177	191	197	183	197	201	219	250	228	198	224	210	229	190
8	199	156	163	174	179	123	64	56	184	199	196	178	177	184	192	204	211	216	212	204	225	227	236	99	184
9	159	168	189	168	175	179	158	146	179	188	188	175	177	177	195	193	176	184	189	187	207	199	189	216	181
10	205	223	239	227	222	219	215	221	218	195	224	228	234	233	222	221	234	228	221	185	184	225	226	233	219
11	298	237	227	223	168	122	86	82	163	190	193	189	203	202	207	212	216	213	212	186	219	225	226	354	201
12	185	188	189	352	35	202	80	101	204	216	188	189	176	173	150	142	154	195	183	143	148	124	150	149	163
13	171	183	131	220	172	158	122	64	314	325	24	354	281	28	12	302	286	204	215	58	167	198	186	171	190
14	121	214	231	222	173	121	70	100	201	188	178	175	200	222	237	218	224	225	239	216	225	226	225	218	201
15	226	238	233	287	234	222	209	243	243	268	283	256	247	228	202	244	176	184	190	147	205	156	172	167	219
16	187	73	222	194	160	144	165	183	186	186	179	186	189	197	196	186	196	198	200	206	236	298	295	337	194
17	356	325	40	345	279	158	67	252	198	197	202	201	200	208	205	213	206	234	283	337	294	275	293	324	252
18	319	321	256	211	194	69	51	200	196	202	202	211	221	216	220	214	238	237	279	322	306	174	223	228	229
19	198	237	102	213	208	198	185	27	225	210	212	218	243	227	343	8	72	321	351	106	234	357	68	199	218
20	194	251	117	194	210	217	236	337	321	321	323	345	323	315	270	318	315	354	1	327	288	254	235	233	286
21	218	226	226	184	213	113	64	304	5	351	329	354	338	337	333	317	316	314	278	246	224	179	246	351	292
22	168	93	175	204	227	122	41	33	235	213	214	246	244	217	212	200	211	215	218	208	228	170	169	169	199
23	179	77	75	123	143	147	152	153	186	191	199	193	201	198	197	201	228								171
24								196	203	209	202	198	197	198	195	205	204	228	232	222	173	170	162	175	198
25	148	151	143	179	203	360	161	169	195	199	210	202	207	208	211	217	211	221	223	263	277	222	233	242	205
26	201	186	172	168	179	169	135	22	179	127	212	222	216	217	215	227	308	262	344	325	115	167	205	133	192
27	254	177	206	212	284	216	141	207	232	203	231	3	257	315	351	54	10	44	17	333	170	320	248	187	250
28	159	165	115	129	163	148	144	152	160	205	307	1	332					353	99	136	148	135	163	155	145
29	255	214	166	175	208	347	81	73	230	213	214	192	202	211	239	233	233	288	315	314	340	49	29	10	237
30	24	145	229	239	239	211	110	24	23	340	324	309	318	308	326	324	353	8	10	360	184	215	199	204	309
31	231	207	213	226	225	190	87	62	15	344	354	345	1	302	5	341	29	332	319	325	220	223	248	177	298
MEAN	197	192	190	196	198	170	129	133	209	214	220	219	225	220	221	220	221	231	240	225	210	205	209	197	

TOTAL NUMBER OF OBSERVATIONS = 8671. MEAN = 206.

! INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND DIRECTION AT 30 FEET
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	186	178	209	60	145	103	182	194	202	196	208	195	196	199	210	199	211	207	227	33	123	143	236	210	186
2	303	172	225	130	225	202	82	340	207	212	206	213		213	220	206	212	218	226	211	196	187	186	174	205
3	176	181	183	190	184	181	186	171	194	211	215	204	200	173	172	163	183	164	167	151	157	189	169	192	181
4	184	169	204	226	231	231	289	307	292	302	301	290	295	274	254	226	215	229	283	319	310	293	229	210	257
5	224	244	222	226	214	184	105	100	193	204	200	199	210	199	201	195	195	187	193	200	206	183	208	205	198
6	198	165	168	164	167	174	179	182	185	201	196	202	198	195	195	204	204	201	196	190	169	171	170	165	184
7	161	164	159	155	152	154	142	166	182	177	158	172	183	192	176	191	198	215	242	222	181	191	199	230	181
8	204	157	148	165	185	111	63	36	177	192	191	171	170	177	184	199	205	209	207	200	208	206	204	126	178
9	179	172	179	160	158	166	152	138	174	181	174	167	168	173	188	185	168	178	185	192	194	190	182	211	175
10	202	219	232	227	217	213	209	217	213	189	218	221	227	227	214	216	227	223	216	187	169	201	200	191	211
11	303	279	220	220	164	124	107	74	157	185	187	182	198	196	201	208	212	210	208	177	190	199	205	2	193
12	192	182	179	204	14	155	52	101	206	211	184	183	170	168	143	137	148	190	177	136	142	117	143	141	160
13	155	171	130	215	159	146	112	57	301	2	8	331	263	25	2	294	280	198	211	48	159	195	173	163	176
14	117	207	223	222	171	119	67	91	197	182	174	170	198	218	239	214	220	220	234	211	219	221	221	214	197
15	223	231	230	279	231	217	207	238	237	260	274	248	236	224	191	237	173	181	188	139	205	150	164	154	213
16	174	73	208	172	142	127	157	176	179	177	173	179	184	190	190	179	191	193	195	201	231	289	289	327	186
17	348	311	30	338	275	153	58	241	193	190	196	197	194	202	201	206	200	228	274	328	288	271	289	314	246
18	317	317	284	208	118	62	52	196	191	196	197	205	214	210	214	209	234	230	274	314	312	159	202	204	220
19	189	237	82	190	206	211	229	13	217	206	215	215	248	224	332	347	64	313	340	81	215	349	58	181	228
20	171	249	122	162	201	221	237	332	315	315	309	339	316	309	253	311	307	346	355	320	293	262	242	237	282
21	257	222	218	181	182	88	51	299	356	346	322	347	330	327	323	310	308	308	274	243	209	162	122	305	290
22	356	127	151	184	219	114	22	27	229	209	206	240	241	214	207	195	206	212	215	201	207	168	182	169	196
23	168	85	72	121	138	143	144	145	178	186	195	188	194	193	207	195	225								166
24								193	197	203	198	191	191	193	189	198	199	224	228	217	167	165	159	169	192
25	141	143	137	175	200	343	154	163	188	194	205	195	203	202	207	213	207	217	218	253	277	246	252	271	204
26	219	162	184	160	175	164	129	7	175	117	209	215	210	210	209	223	301	269	334	313	90	153	183	131	188
27	254	174	184	178	267	217	135	201	227	199	225	319	250	305	344	46	344	36	10	324	19	325	259	169	258
28	152	158	114	136	159	136	138	146	154	199	296	353	321					347	89	130	143	129	162	164	143
29	259	211	146	144	181	355	73	73	223	208	211	188	198	205	232	227	228	280	307	305	331	45	12	8	229
30	16	130	223	240	222	202	94	14	12	331	316	311	310	302	318	322	345	360	4	354	143	177	171	189	313
31	253	201	184	224	236	163	62	56	5	328	336	340	355	283	345	336	23	323	311	322	210	205	66	134	312
MEAN	204	186	180	186	189	160	122	131	204	207	216	215	219	215	216	215	217	226	236	226	198	191	193	190	

TOTAL NUMBER OF OBSERVATIONS = 8671. MEAN = 200.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF WIND DIRECTION AT 100 FEET
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	178	191	206	245	149	140	187	194	203	198	208	195	196	200	211	198	210	206	226	23	87	122	294	226	195
2	66	49	312	141	37	301	64	4	206	211	207	214		213	220	206	213	218	227	217	201	186	187	173	203
3	175	176	176	177	174	169	182	169	193	211	215	204	200	170	171	162	182	163	167	153	148	190	170	192	178
4	186	170	207	233	246	245	305	309	294	305	304	293	298	274	254	226	215	229	286	323	315	304	282	276	268
5	241	269	259	258	237	215	122	105	193	203	198	198	208	199	201	196	195	187	193	199	207	183	208	205	204
6	197	165	168	163	165	173	178	181	184	201	195	201	198	195	195	204	203	200	196	192	164	161	165	158	183
7	151	159	154	152	148	143	139	164	179	176	156	170	182	191	175	191	198	214	242	235	189	154	192	264	178
8	247	254	133	167	190	80	75	33	175	189	191	170	169	175	184	199	205	208	207	200	207	205	190	161	183
9	181	171	166	152	136	153	151	136	174	178	173	167	166	171	187	185	167	179	186	195	193	190	179	210	173
10	203	221	234	227	220	215	205	216	211	189	217	223	227	227	213	215	225	223	216	199	171	197	203	194	211
11	255	4	152	159	136	141	146	83	155	184	187	181	196	196	201	208	212	210	208	174	173	186	172	24	177
12	97	173	168	200	214	165	147	113	204	213	184	183	169	168	144	138	148	190	176	137	142	117	142	139	161
13	146	166	142	210	147	129	106	64	313	356	37	339	289	34	6	300	284	198	210	48	160	194	171	161	151
14	124	206	233	234	179	122	77	94	200	181	174	171	200	219	238	216	219	220	235	213	220	223	222	216	199
15	225	233	232	285	235	219	211	239	238	262	274	249	235	227	190	240	179	187	193	142	194	153	162	154	215
16	157	124	170	154	129	124	157	176	179	178	173	178	185	190	192	182	192	195	194	201	230	290	291	331	182
17	352	323	32	346	290	144	57	240	192	190	195	195	194	201	204	207	200	228	274	329	295	278	296	320	249
18	322	325	322	219	54	77	62	194	190	194	197	206	213	210	213	210	234	231	275	317	319	148	159	189	219
19	265	302	33	126	207	198	273	4	217	206	200	212	238	233	334	345	63	316	342	67	58	351	55	139	284
20	141	223	21	118	139	341	242	349	323	319	314	346	319	313	281	313	310	350	357	324	311	288	281	275	313
21	321	255	243	216	196	119	62	311	359	349	324	349	333	330	322	313	313	311	278	260	218	190	137	339	299
22	10	142	113	155	202	161	45	33	230	209	206	234	235	209	207	195	206	212	213	199	203	182	187	172	192
23	162	96	93	125	134	144	144	145	177	185	195	186	195	194	207	193	224								166
24								193	196	200	196	190	190	191	189	196	198	223	228	216	165	164	159	169	191
25	142	141	137	174	197	339	146	162	186	191	204	193	202	200	206	211	206	215	216	251	300	326	309	325	204
26	22	141	182	157	174	163	129	8	172	123	209	214	208	209	207	225	303	266	341	315	56	130	160	155	180
27	270	171	147	152	266	250	140	201	227	199	223	296	251	306	340	48	335	39	10	315	335	322	287	171	265
28	140	154	123	165	157	133	134	144	152	198	294	354	320					349	84	118	136	121	168	131	139
29	284	220	153	108	136	80	99	82	225	209	209	189	196	204	232	226	228	280	308	309	334	48	16	11	212
30	19	120	244	262	252	230	73	19	10	333	318	308	314	305	321	323	347	2	5	358	71	136	139	186	335
31	93	222	287	358	252	100	155	69	9	338	339	341	357	321	351	337	21	325	313	324	131	206	31	319	344
MEAN	182	186	177	181	183	156	132	128	203	206	212	214	219	214	217	215	217	226	236	233	189	184	191	196	

TOTAL NUMBER OF OBSERVATIONS = 8671. MEAN = 199.

: INDICATES CALIBRATION DURING THE HOUR

CORPORATION

DIURNAL VARIATION OF WIND DIRECTION AT 200 FEET
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	195	197	209	206	163	170	192	203	212	206	216	203	204	209	220	207	218	213	233	24	67	113	105	230	196
2	248	351	332	120	103	151	81	324	215	218	216	225		223	229	215	223	226	235	228	217	202	204	188	215
3	187	189	184	184	173	166	184	176	202	220	225	214	209	179	181	170	191	174	179	161	155	202	181	203	186
4	197	184	220	242	258	246	319	318	304	314	307	296	302	283	263	235	225	239	295	326	320	312	311	1	280
5	251	292	297	304	288	256	197	126	203	213	207	207	217	209	209	206	204	197	203	210	216	194	219	214	220
6	208	177	178	171	174	182	188	190	193	209	206	209	207	204	203	212	212	209	204	203	177	166	177	165	192
7	157	166	162	165	162	152	149	174	189	186	164	179	192	199	184	200	206	223	249	251	285	135	203	299	188
8	301	273	124	167	198	225	198	240	185	198	201	180	178	184	192	207	212	216	214	211	222	219	207	188	204
9	183	175	170	160	133	150	161	147	184	195	183	176	174	179	196	194	175	188	196	208	205	203	189	217	181
10	212	228	241	238	229	224	211	225	219	198	225	230	234	237	222	224	233	231	222	215	187	212	221	212	221
11	201	189	162	179	154	158	160	116	164	192	195	190	204	205	211	217	220	218	216	187	180	200	192	164	186
12	139	170	165	193	197	189	190	150	200	221	192	190	176	174	151	150	156	198	185	145	149	125	149	145	171
13	150	169	167	201	159	158	121	78	301	351	53	16	247	39	9	302	287	205	218	45	169	199	181	167	170
14	157	212	247	241	202	144	118	123	210	190	186	183	209	228	245	225	228	229	244	222	229	232	231	225	209
15	235	241	244	297	245	231	224	247	247	271	285	259	242	235	201	252	195	208	206	152	205	165	166	166	226
16	157	134	171	155	138	142	169	185	188	188	181	187	194	198	199	188	198	202	203	210	239	298	301	337	189
17	357	336	36	355	322	130	58	239	201	198	203	204	203	210	211	215	209	237	285	337	302	285	303	323	260
18	325	327	333	334	71	96	67	203	199	203	206	216	221	220	222	220	244	241	284	319	320	169	137	183	232
19	289	341	226	154	222	205	249	14	226	215	214	221	249	239	336	357	38	322	345	63	66	354	51	115	282
20	125	208	299	129	106	83	267	350	340	326	321	348	322	317	273	317	316	354	358	328	327	310	309	295	323
21	333	301	267	251	226	187	238	318	360	351	325	351	336	333	323	317	318	314	284	276	241	228	194	224	290
22	211	176	77	142	199	227	129	37	241	218	216	251	249	221	219	204	214	219	221	207	210	194	195	184	204
23	171	120	135	161	149	159	158	154	187	195	204	195	203	210	214	202	233								179
24								203	204	208	204	198	199	200	198	205	206	231	237	225	175	174	172	183	200
25	155	154	150	187	205	19	152	175	195	201	212	202	213	209	215	219	215	226	225	258	315	343	342	344	209
26	21	132	190	165	185	177	144	3	185	134	219	224	217	218	216	235	310	271	342	320	41	115	145	174	192
27	279	153	147	153	251	303	145	211	238	212	234	303	260	310	342	47	318	42	360	312	339	321	315	317	288
28	142	163	146	229	192	140	146	154	162	205	299	356	323					353	75	116	132	118	172	170	154
29	309	255	184	127	126	121	111	104	234	219	218	198	205	213	241	235	239	291	318	318	342	50	22	16	227
30	22	118	235	287	282	259	123	26	9	337	323	311	318	310	323	326	348	5	7	360	53	108	134	174	343
31	176	229	26	348	278	184	193	106	13	346	338	347	1	336	4	343	20	329	316	326	48	206	222	306	332
MEAN	203	195	191	191	190	175	164	170	212	216	222	223	226	223	226	225	229	236	247	248	220	194	196	207	

TOTAL NUMBER OF OBSERVATIONS = 8671. MEAN = 211.

: INDICATES CALIBRATION DURING THE HOUR

CORPORATION

DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 8 FEET
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	11	14	10	15	9	11	11	8	11	12	10	11	11	11	11	10	11	11	9	10	6	7	8	5	10
2	10	13	3	7	5	7	13	18	11	15	13	22		11	14	15	13	11	9	6	5	5	5	6	10
3	7	5	5	7	7	6	7	8	9	14	12	13	11	12	12	11	11	15	16	15	7	9	8	7	10
4	11	9	11	7	7	14	9	8	13	12	9	12	16	15	17	11	10	12	11	9	9	5	10	11	11
5	5	3	5	6	3	8	17	21	12	12	14	13	12	12	13	11	12	10	11	10	11	8	11	12	11
6	17	7	6	9	10	7	9	10	9	12	12	11	13	12	9	15	11	12	10	8	8	6	5	8	10
7	2	6	5	5	6	6	9	11	12	12	15	15	14	11	11	13	12	10	11	6	6	6	11	6	9
8	12	5	10	16	15	10	10	20	13	12	12	11	12	13	15	12	12	11	10	5	5	6	8	13	11
9	20	9	5	9	6	7	12	14	11	14	14	14	13	15	14	12	12	12	15	10	6	4	7	8	11
10	11	14	8	22	12	9	10	9	12	12	15	16	15	13	11	11	11	14	10	11	8	5	8	7	11
11	15	8	13	7	9	11	17	18	12	13	13	12	14	14	14	11	12	8	8	6	6	3	7	11	11
12	10	5	4	15	10	13	13	28	28	15	14	11	12	15	15	15	12	9	9	11	11	12	9	9	13
13	9	5	15	8	8	8	11	20	20	30	31	33	30	13	18	15	9	8	13	8	8	8	4	7	14
14	10	6	8	9	9	8	11	15	14	13	10	12	16	11	12	9	10	10	11	10	9	10	10	10	11
15	10	9	9	11	12	8	11	13	13	14	12	14	15	11	15	11	9	10	13	11	24	11	10	11	12
16	8	16	9	3	8	9	8	9	10	12	13	11	9	13	11	10	10	11	9	10	10	11	10	9	10
17	4	10	9	5	11	12	27	20	12	11	10	10	13	12	13	12	11	9	8	5	7	10	8	8	11
18	10	11	16	7	16	13	14	12	12	11	10	13	15	13	13	15	15	15	9	8	9	7	7	7	12
19	6	4	7	4	4	9	18	24	18	16	35	28	25	22	15	20	17	11	5	5	8	10	12	8	14
20	6	4	7	5	4	11	16	29	26	23	21	10	20	12	28	14	15	10	10	6	5	7	7	7	13
21	11	5	3	12	8	11	13	22	19	17	26	14	14	17	19	18	15	16	12	7	5	11	16	10	13
22	14	11	4	8	4	9	11	17	15	12	16	18	25	25	20	12	13	11	12	3	4	6	12	8	12
23	10	12	12	11	15	8	12	13	9	10	10	13	13	23	23	10	13								13
24								10	13	13	13	12	12	17	11	14	10	11	9	10	10	11	15	14	12
25	10	10	11	6	9	9	15	13	11	12	13	12	14	13	13	12	10	9	11	8	10	6	4	9	10
26	6	8	12	8	7	7	10	11	18	15	8	16	16	13	14	15	10	28	8	9	10	6	8	14	12
27	7	8	6	11	11	7	11	11	14	11	16	21	17	9	21	11	15	11	12	10	9	18	6	8	12
28	10	8	9	15	11	11	12	12	12	13	8	9	28					8	10	9	16	7	6	13	11
29	4	6	4	5	8	8	12	12	25	15	16	13	15	12	14	13	12	10	11	8	9	11	17	21	12
30	14	9	6	5	7	7	25	15	22	17	26	29	22	15	18	19	15	11	10	9	9	5	14	7	14
31	6	7	8	6	8	5	13	20	18	25	21	20	20	26	21	21	19	14	9	7	8	7	9	9	14
MEAN	10	8	8	9	9	9	13	15	15	14	15	15	16	14	15	13	12	12	10	8	9	8	9	9	

TOTAL NUMBER OF OBSERVATIONS = 8653. MEAN = 12.

* INDICATES CALIBRATION DURING THE HOUR

CORPORATION

DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 30 FEET
TRAILER NO. • 23 PERIOD(5/ 1/77 TO 5/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	14	21	9	17	7	22	11	7	8	9	9	9	8	7	11	7	9	9	8	8	7	4	9	5	10
2	12	12	4	5	5	4	10	25	8	12	10	12		10	11	10	10	8	5	2	5	3	2	2	8
3	4	3	2	5	3	2	4	5	5	7	9	9	8	6	6	7	6	11	12	10	5	5	4	5	6
4	5	5	7	6	5	10	8	4	6	10	8	8	16	10	13	11	8	7	7	5	5	5	9	9	8
5	6	5	4	1	3	4	12	15	6	9	11	8	8	10	10	8	8	7	8	7	5	5	8	8	7
6	5	3	4	5	5	6	7	7	7	9	7	10	9	9	11	10	8	8	7	5	3	3	2	4	6
7	2	4	1	2	2	4	6	7	8	9	12	12	11	9	8	10	8	8	7	4	3	3	9	1	6
8	12	6	8	17	12	12	6	19	10	10	11	7	8	8	10	9	10	7	5	4	3	3	8	17	9
9	18	19	3	5	3	2	6	9	7	10	14	12	11	12	10	9	8	9	13	9	4	2	2	5	8
10	4	11	5	15	8	4	7	6	9	9	11	13	12	8	9	9	10	9	6	5	4	5	6	12	8
11	19	11	9	5	7	9	20	13	6	10	12	9	8	12	11	7	9	7	4	3	6	4	9	8	9
12	12	4	2	25	9	15	12	24	20	11	10	9	10	14	13	13	6	5	2	7	6	7	5	2	10
13	2	3	14	4	4	4	6	15	20	16	31	28	22	11	12	12	8	6	7	10	6	5	2	2	10
14	9	4	5	6	4	6	7	15	10	10	6	7	11	8	12	8	6	6	7	8	7	6	7	7	8
15	5	6	4	8	6	7	6	10	10	8	6	10	15	9	15	7	6	7	7	5	15	5	5	6	8
16	3	11	8	4	5	6	5	8	7	9	9	7	7	6	7	8	7	9	7	6	7	9	3	5	7
17	5	10	7	5	3	10	11	15	9	9	8	8	11	10	10	9	11	5	4	4	4	6	5	4	8
18	4	9	13	7	14	13	10	7	10	8	9	11	9	10	11	12	11	10	7	5	5	3	4	3	9
19	4	4	4	3	4	7	17	14	13	11	24	21	21	23	10	15	13	15	4	3	6	5	7	6	11
20	3	4	6	3	5	6	7	20	24	16	18	12	16	10	26	10	13	7	7	5	2	6	3	4	10
21	16	4	2	12	9	5	15	14	10	15	19	11	12	13	17	17	14	14	8	5	4	16	15	9	12
22	11	7	2	4	7	5	8	11	13	10	13	15	18	21	16	9	9	8	10	3	3	4	8	3	9
23	6	7	9	12	11	4	6	8	8	6	8	7	10	21	23	8	10								10
24								9	9	7	7	9	9	12	10	9	8	6	6	7	5	6	12	9	8
25	9	5	6	4	5	6	11	10	8	9	10	10	9	11	10	8	9	7	6	6	6	13	5	9	8
26	17	3	9	3	4	3	5	6	17	11	9	13	14	9	9	11	9	23	5	4	9	6	2	10	9
27	12	4	4	13	6	6	7	6	12	8	12	16	13	5	9	6	15	7	9	7	5	10	5	9	9
28	7	2	7	14	12	5	11	9	8	12	10	5	17					7	6	5	10	4	6	14	8
29	5	3	3	4	6	11	11	12	19	12	18	9	12	11	12	10	5	6	6	5	4	7	10	13	9
30	11	5	4	3	6	6	25	12	14	17	18	23	20	12	14	12	10	7	6	3	7	5	8	5	11
31	5	12	11	7	4	3	11	15	15	15	18	15	16	27	18	19	21	9	6	5	8	4	8	5	11
MEAN	8	7	6	7	6	7	10	12	11	10	12	11	12	12	12	10	10	9	7	6	6	6	6	7	

TOTAL NUMBER OF OBSERVATIONS = 8663. MEAN = 9.

! INDICATES CALIBRATION DURING THE HOUR

CORPORATION

DIURNAL VARIATION OF WI[illegible] DIRECTION STANDARD DEVIATION AT 100 FEET
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	12	8	8	21	8	25	7	2	7	6	7	6	7	7	7	8	7	8	4	3	4	5	13	2	8
2	7	3	5	3	7	5	7	18	6	10	8	10		9	11	9	8	7	5	2	1	2	3	3	6
3	1	2	2	4	1	3	1	7	6	7	6	8	6	7	7	6	7	9	12	7	3	5	2	4	5
4	4	5	7	5	4	11	5	6	8	8	7	7	13	13	9	7	7	6	7	3	4	4	13	15	7
5	5	3	9	6	4	3	18	15	5	9	10	8	7	7	9	8	7	8	7	7	5	5	5	5	7
6	6	2	3	4	5	3	6	8	4	7	8	9	7	9	6	8	9	5	6	2	2	3	2	6	5
7	4	3	2	2	2	2	3	8	7	5	10	11	10	6	6	10	7	7	5	4	4	5	10	4	6
8	11	6	4	7	7	13	23	24	9	7	9	6	7	8	10	6	7	6	6	2	3	3	5	12	8
9	10	5	2	3	2	2	7	8	6	9	13	11	9	12	8	9	9	9	11	8	2	3	3	3	7
10	5	11	5	13	9	4	7	3	9	7	12	14	10	8	7	7	7	8	5	6	1	2	2	5	7
11	8	15	14	10	7	5	10	11	6	8	8	7	9	10	9	8	6	5	4	3	3	3	5	12	8
12	8	3	0	10	17	12	29	24	20	13	10	7	8	13	9	10	7	6	4	4	4	4	3	2	10
13	4	2	16	4	2	3	4	11	15	16	24	20	18	8	10	10	7	6	8	10	3	3	2	1	9
14	12	2	6	6	3	4	6	11	9	10	5	8	11	6	7	5	5	6	7	5	4	5	5	6	6
15	3	4	5	7	4	3	4	9	7	7	6	10	12	6	16	5	8	7	7	5	11	4	5	5	7
16	1	24	7	2	2	4	4	5	6	9	7	9	7	7	8	5	5	6	8	7	6	7	5	2	6
17	4	5	5	4	4	6	12	14	7	8	8	8	7	8	6	6	10	8	3	5	3	6	1	4	6
18	5	7	9	6	6	14	11	5	9	6	5	7	8	9	8	9	9	9	6	5	2	5	2	6	7
19	10	8	10	2	6	11	14	14	10	9	27	19	15	29	11	17	16	9	5	3	7	4	6	9	11
20	5	3	4	2	6	3	8	16	22	12	13	10	14	5	19	8	10	4	5	5	3	5	3	2	8
21	12	13	3	10	8	9	11	10	11	14	20	9	10	10	12	14	15	11	7	4	4	16	21	16	11
22	7	8	2	4	4	16	9	12	12	6	10	17	24	21	13	6	8	7	8	1	2	5	8	3	9
23	5	10	27	24	10	5	6	6	6	7	5	6	8	19	22	5	7								11
24								5	6	6	8	7	8	9	7	9	8	7	5	5	7	7	10	11	7
25	8	5	5	4	7	6	10	9	7	8	10	10	9	7	8	6	5	4	5	6	6	5	8	7	7
26	6	4	8	3	5	3	5	6	16	11	5	12	11	7	10	9	8	22	4	4	8	2	3	6	7
27	7	4	1	4	12	5	4	5	11	6	12	25	10	5	10	5	13	5	7	8	7	8	6	10	8
28	4	3	9	20	12	5	7	8	7	8	10	8	14					3	5	3	7	3	3	9	7
29	1	2	4	1	3	7	7	13	16	7	11	8	10	9	10	8	8	6	5	5	3	6	9	10	7
30	7	5	8	6	6	5	34	12	10	11	14	18	17	10	11	7	10	8	4	3	6	4	6	4	9
31	23	1	5	10	5	4	13	15	11	15	18	15	15	22	27	12	15	7	6	5	12	5	13	6	12
MEAN	7	6	7	7	6	7	10	10	9	9	11	11	11	10	10	8	9	7	6	5	5	5	6	6	

TOTAL NUMBER OF OBSERVATIONS = 8662. MEAN = 8.

! INDICATES CALIBRATION DURING THE HOUR

CORPORATION

DIURNAL VARIATION OF WIND DIRECTION STANDARD DEVIATION AT 200 FEET

TRAILER NO, = 23 PERIOD(5/ 1/77 TO 5/31/77)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	7	3	4	18	5	12	5	5	4	6	5	7	5	7	7	6	7	6	7	1	2	4	9	6	6
2	4	3	5	9	6	7	9	32	5	11	7	10		7	8	7	7	8	2	4	2	3	2	0	7
3	4	0	2	2	1	2	3	4	3	8	7	5	7	7	5	6	6	10	11	8	2	5	3	5	5
4	7	3	4	5	5	9	3	5	6	7	7	6	10	11	11	8	4	6	5	4	6	5	6	11	6
5	6	4	4	4	7	4	17	15	6	8	7	6	6	5	6	3	7	8	4	5	5	4	5	5	6
6	4	3	5	4	3	5	4	6	6	8	8	5	6	8	6	8	6	5	5	3	2	2	2	2	5
7	1	3	2	3	2	3	5	5	5	6	11	12	9	7	5	9	7	4	7	3	7	3	7	8	6
8	8	6	2	4	6	17	11	20	7	6	6	5	8	7	10	7	4	6	5	3	2	3	1	5	7
9	2	2	2	4	2	1	5	8	7	16	11	10	8	11	9	8	7	9	9	6	3	2	3	4	6
10	4	9	6	13	7	5	3	4	9	8	9	13	9	9	6	7	8	7	5	7	4	2	1	2	7
11	7	12	7	7	8	4	4	14	5	7	7	7	8	9	10	6	7	6	2	3	2	2	9	21	7
12	5	4	2	5	24	11	11	24	17	12	9	7	8	12	11	8	6	4	5	5	4	5	2	2	8
13	2	2	8	4	2	10	5	14	38	11	32	37	27	9	9	10	5	3	8	16	3	2	2	4	11
14	10	3	1	6	4	4	8	8	11	10	5	6	10	7	8	3	5	6	6	4	5	3	4	5	6
15	5	6	4	10	4	5	5	8	9	7	5	9	13	7	9	6	4	9	6	5	9	4	3	4	7
16	2	14	5	2	1	6	2	5	5	9	9	9	6	8	5	6	5	7	7	6	5	6	4	4	6
17	1	5	4	2	16	6	16	16	6	6	6	5	8	6	10	8	10	7	4	2	3	3	5	1	7
18	3	7	6	4	9	21	21	6	8	4	3	7	8	7	8	8	8	6	5	2	4	3	3	4	7
19	7	4	9	4	11	4	11	16	8	8	21	19	19	20	9	15	19	13	5	3	4	4	4	6	10
20	7	5	6	4	4	4	7	25	12	11	11	13	14	7	29	8	9	6	4	3	3	1	6	3	8
21	7	10	7	8	4	6	15	15	10	13	17	8	9	13	10	12	17	11	7	4	5	3	19	20	10
22	22	8	6	4	3	5	6	12	11	7	12	13	14	15	12	8	7	4	8	2	3	2	5	2	8
23	2	11	36	14	11	6	5	4	5	6	4	7	9	18	22	5	9								10
24								8	8	7	7	8	6	10	7	9	8	4	5	7	8	8	11	9	8
25	10	8	5	3	5	7	9	10	7	9	8	8	7	9	6	5	3	5	4	5	6	3	4	3	6
26	4	5	9	3	2	3	5	7	14	12	5	10	11	8	9	10	7	28	2	5	8	2	2	5	7
27	2	9	2	3	11	5	6	5	8	7	8	24	8	8	10	5	17	4	7	6	8	4	6	10	8
28	6	3	12	31	8	4	5	7	6	10	7	7	13					4	4	2	12	3	1	8	8
29	5	4	6	1	1	3	1	12	15	6	8	8	9	8	9	7	7	7	5	2	2	6	9	10	6
30	6	5	20	3	5	5	27	14	9	11	12	16	15	5	11	8	9	7	3	1	5	6	3	12	9
31	4	11	7	4	2	4	1	15	11	11	13	13	9	16	19	11	19	7	6	3	14	4	4	2	9
MEAN	5	6	7	6	6	6	8	11	9	9	9	10	10	9	10	8	8	7	5	4	5	3	5	6	

TOTAL NUMBER OF OBSERVATIONS = 8666, MEAN = 8.

I INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF HORIZONTAL WIND DIRECTION STANDARD DEVIATION AT 200 FEET
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	5	5	3	18	6	8	4	3	3	6	6	6	6	5	6	6	4	4	4	3	2	2	9	4	5
2	3	6	4	3	5	7	13	32	5	9	6	8		6	9	6	6	5	3	4	3	3	4	3	7
3	1	2	3	2	3	1	2	3	4	7	7	7	6	9	5	6	5	9	10	11	2	5	4	4	5
4	4	3	7	5	2	9	4	4	6	3	6	5	12	8	10	14	4	2	5	4	4	2	6	7	6
5	4	1	4	5	7	3	13	14	6	6	7	6	6	5	6	6	5	4	4	5	4	3	5	5	6
6	3	2	4	1	3	2	5	4	6	7	6	6	5	7	6	8	6	5	7	3	2	1	2	0	4
7	2	2	2	2	2	1	3	6	4	8	8	11	8	6	5	7	6	5	5	3	12	2	6	7	5
8	12	7	2	4	6	22	11	24	7	5	7	6	4	6	7	7	5	6	6	3	2	1	3	4	7
9	4	4	2	3	2	2	5	4	5	7	9	10	6	8	8	8	7	6	9	4	2	2	4	3	5
10	4	7	7	8	7	4	4	2	7	5	10	24	17	40	7	6	30	19	4	6	3	3	3	2	9
11	7	9	5	6	6	3	4	12	5	7	10	8	8	9	8	7	7	6	4	1	2	4	8	16	7
12	2	3	1	5	21	12	10	20	19	11	7	5	6	9	8	7	4	3	2	3	3	4	2	0	7
13	1	2	4	1	1	8	4	13	27	15	31	29	24	9	8	10	5	4	4	9	3	1	2	2	9
14	8	1	2	4	4	4	6	8	8	6	4	3	6	5	4	5	3	17		3	2	3	4	4	5
15	3	4	5	7	17	14	3	29	9	10	9	17	11	16	9	10	14	8	6	3	7	3	1	3	9
16	2	12	3	3	1	4	3	3	4	8	8	6	15	24	15	6	8	12	15	10	6	4	4	7	8
17	2	7	4	5	15	5	10	15	6	7	23	24	16	9	9	5	7	7	5	3	3	4	4	2	8
18	2	4	4	6	8	19	9	5	5	6	13	11	10	9	7	13	6	8	4	4	4	3	1	4	7
19	6	4	4	5	8	4	10	14	9	9	18	17	30	18	10	9	15	11	5	3	4	5	3	6	9
20	4	3	5	1	2	3	5	27	21	19	12	12	13	3	23	6	9	8	6	4	4	3	4	1	8
21	8	16	7	10	2	6	18	16	10	10	16	11	8	12	13	13	12	8	5	4	4	4	15	13	10
22	16	5	5	3	3	7	8	14	11	8	9	11	12	13	9	7	8	4	3	2	4	3	2	1	7
23	3	8	25	13	8	5	4	5	5	5	5	5	7	6	15	6	9								8
24								4	5	5	5	6	6	9	5	8	6	5	5	4	7	5	8	9	6
25	8	5	4	5	3	7	7	7	5	5	7	5	7	6	5	4	5	3	5	4	5	3	3	6	5
26	6	3	8	2	3	2	3	4	11	11	3	9	7	7	5	6	6	27	6	2	8	3	2	5	6
27	4	5	2	2	10	4	3	2	5	5	9	29	10	4	11	3	14	4	7	5	5	5	3	7	7
28	6	2	11	21	6	4	7	5	5	8	6	5	9					4	4	4	8	3	2	8	6
29	4	4	4	1	3	3	2	9	14	5	8	7	9	7	7	5	5	5	4	3	5	5	8	8	6
30	6	3	14	4	3	5	28	13	8	14	9	13	12	8	9	10	10	8	3	2	6	5	4	4	8
31	4	9	5	3	5	3	2	12	11	11	13	11	10	20	17	15	16	8	6	2	12	3	3	4	9
MEAN	5	5	5	5	6	6	7	11	8	8	10	11	10	10	9	8	8	7	5	4	5	3	4	5	

TOTAL NJMBER OF OBSERVATIONS = 8648. MEAN = 7.

* INDICATES CALIBRATION DURING THE HOUR

CORPORATION

DIURNAL VARIATION OF TEMPERATURE AT 8 FEET(DEG F)
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	49	49	50	47	47	46	48	54	56	56	55	52	51	50	54	53	54	54	50	45	41	40	37	36	49
2	37	38	36	37	36	35	40	47	53	56	57	59		62	62	62	61	61	56	50	45	47	44	48	49
3	49	45	46	43	44	45	45	51	54	56	57	57	55	56	55	53	50	48	48	45	42	42	41	42	49
4	43	41	42	40	38	36	36	40	43	44	47	50	50	52	54	54	55	53	51	47	44	43	38	38	45
5	37	36	33	30	28	28	33	40	51	52	55	57	59	59	61	61	60	58	57	55	53	51	52	50	48
6	47	45	46	46	44	44	47	49	51	54	57	58	60	62	61	62	61	59	59	52	49	48	49	48	52
7	47	46	44	44	43	43	49	53	55	57	60	62	65	67	66	67	67	63	59	55	50	45	43	42	54
8	43	43	42	41	40	40	43	50	57	59	61	63	64	64	67	67	67	66	63	56	49	47	45	46	54
9	47	47	48	46	45	46	52	58	60	63	65	66	68	69	70	71	70	70	67	61	54	53	56	55	59
10	51	47	44	42	40	38	39	38	36	35	40	44	46	49	50	50	50	49	46	42	37	33	32	32	42
11	32	31	31	31	33	33	35	43	51	53	55	58	59	61	61	60	60	58	56	50	43	42	40	42	46
12	40	41	43	42	41	40	43	52	58	60	61	62	62	62	64	63	63	59	54	53	53	51	49	47	53
13	44	45	44	41	42	42	46	50	55	55	59	58	58	56	59	61	58	44	41	40	40	38	38	39	48
14	37	35	35	34	32	31	32	32	35	35	36	37	39	42	41	40	41	41	40	39	40	40	39	39	37
15	39	40	39	39	38	39	39	43	45	48	49	49	48	48	50	43	42	42	39	39	39	38	38	38	42
16	35	34	34	34	36	37	41	45	47	50	52	55	57	58		59	57	56	53	54	51	44	39	36	46
17	33	33	33	31	31	32								57	58	58	56	54	51	46	44	42	42	40	43
18	38	36	32	30	31	30	35	41	45	46	47	49	50	50	50	49	49	48	43	40	36	34	30	29	40
19	29	27	27	28	25	27	32	39	44	46	46	48													35
20																									
21																									
22																									
23																									
24																									
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28																									
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30																									
31																									
MEAN	41	40	39	38	38	37	41	46	50	51	53	55	56	57	58	57	57	55	52	48	45	43	42	42	

TOTAL NUMBER OF OBSERVATIONS = 5202. MEAN = 48.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF TEMPERATURE AT 30 FEET(DEG F)
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	54	49	54	51	51	49	51	56	56	56	56	53	52	50	54	53	55	55	52	48	45	45	41	41	51
2	41	40	41	41	40	40	42	48	53	56	57	58		61	62	62	62	61	59	55	52	53	51	51	52
3	52	50	50	49	49	49	48	53	56	56	58	57	56	56	56	54	50	49	49	46	45	44	42	44	51
4	44	43	44	43	41	40	37	40	42	44	46	49	50	52	54	55	55	54	52	49	47	45	43	42	46
5	41	39	37	36	35	33	35	41	51	52	54	57	58	59	60	61	61	59	59	57	55	54	54	52	50
6	49	48	49	48	46	46	47	49	51	54	56	58	59	61	61	62	62	61	60	57	55	53	52	51	54
7	51	50	50	49	47	47	50	53	55	57	60	63	64	66	67	68	67	66	62	59	56	56	50	48	57
8	49	47	47	46	45	45	45	52	57	59	61	63	64	65	67	68	68	67	65	61	55	55	54	51	57
9	52	51	53	50	50	50	54	58	61	63	64	66	68	69	70	71	71	71	69	66	61	60	60	58	61
10	53	49	46	44	42	40	40	39	37	35	39	42	46	48	49	49	50	49	48	44	42	40	38	38	44
11	36	35	35	35	36	36	37	44	50	52	54	56	58	60	61	61	61	60	58	55	53	52	47	45	49
12	46	46	47	45	45	44	44	53	59	60	61	62	63	63	64	64	64	60	55	55	55	53	51	49	55
13	48	48	47	46	45	45	48	52	56	57	60	60	60	57	60	61	60	45	42	42	41	41	41	41	50
14	40	39	38	37	33	32	32	33	35	37	37	38	40	42	41	41	42	42	41	40	41	40	40	40	38
15	40	41	41	41	40	40	40	44	46	48	49	49	49	48	50	45	43	44	40	40	41	40	39	39	43
16	38	37	37	37	39	40	43	46	48	50	52	55	56	58	59	58	57	57	56	55	52	45	39	36	48
17	35	35	34	33	33	33	33	41	45	47			53	55	57	56	55	54	51	46	44	43	41	40	44
18	38	36	33	32	31	30	34	40	42	44	45	46	47	48	48	47	47	46	43	38	36	35	33	32	40
19	30	30	28	30	28	28	31	37	42	44	45	46													35
20																									
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30																									
31																									
MEAN	44	43	43	42	41	40	42	46	50	51	53	54	55	57	58	58	57	56	53	51	49	47	45	44	

TOTAL NUMBER OF OBSERVATIONS = 5280. MEAN = 49.

: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF TEMPERATURE AT 100 FEET(DEG F)
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	56	50	55	52	52	50	50	55	55	55	54	51	50	48	52	52	53	53	51	47	45	45	42	42	50
2	41	41	41	41	41	40	41	47	51	54	55	56		59	60	60	60	60	58	56	55	54	52	53	51
3	53	52	52	51	50	50	49	52	55	55	56	55	54	55	53	52	48	48	48	46	45	43	42	43	50
4	43	42	44	43	42	40	38	39	40	42	44	47	48	50	52	53	53	53	51	48	46	44	43	42	45
5	41	38	37	36	35	34	34	40	49	50	52	54	55	56	58	58	59	58	58	56	54	53	53	51	49
6	49	49	49	47	46	45	46	48	49	51	53	55	56	59	59	60	60	60	59	57	55	55	54	52	53
7	52	51	50	50	48	48	49	52	53	55	58	60	62	64	64	65	65	64	61	58	57	57	54	50	56
8	51	49	49	48	47	46	47	51	56	57	59	60	62	63	65	66	66	65	64	62	58	58	58	54	57
9	54	53	54	53	53	52	54	57	59	61	62	64	66	66	68	69	69	69	68	65	62	61	60	57	61
10	52	48	46	43	42	39	39	38	36	34	38	41	43	45	46	47	48	48	47	44	43	43	42	41	43
11	38	37	37	36	37	37	37	43	48	50	52	54	56	58	59	59	59	59	57	56	56	54	52	47	49
12	48	48	50	46	45	45	46	53	57	58	59	60	61	61	62	62	62	59	54	54	54	52	50	49	54
13	47	48	47	47	47	46	47	51	55	56	58	58	58	56	58	59	59	43	41	41	41	41	41	41	49
14	40	39	39	36	32	31	31	32	34	36	36	37	39	41	40	40	41	41	40	39	40	39	39	39	38
15	40	40	40	40	39	39	39	43	44	47	48	48	47	46	49	44	42	43	39	39	40	39	39	39	42
16	38	36	37	38	40	41	42	45	47	48	50	52	53	55	56	56	56	56	55	54	51	44	38	35	47
17	34	34	33	32	32	32	32	40	43	45	47	49	52	53	54	54	53	53	50	45	43	42	40	39	43
18	37	35	33	32	31	31	34	39	41	42	43	44	45	45	46	45	45	45	42	37	35	35	34	34	39
19	32	31	29	31	30	29	30	36	40	42	43	45													35
20																									
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30																									
31																									
MEAN	44	43	43	42	41	41	41	45	48	49	51	52	53	54	56	56	56	54	52	50	49	48	46	45	

TOTAL NUMBER OF OBSERVATIONS = 5296. MEAN = 49.

: INDICATES CALIBRATION DURING THE HOUR

CORPORATION

DIURNAL VARIATION OF TEMPERATURE AT 200 FEET(DEG F)
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	57	51	55	52	52	49	50	54	55	54	54	50	49	48	51	51	53	52	50	46	45	44	42	41	50
2	40	40	41	41	42	40	43	46	50	53	54	56		59	59	60	60	60	57	56	55	54	53	52	51
3	53	52	53	52	51	50	49	51	54	54	56	55	54	53	52	51	48	46	47	45	45	42	41	42	50
4	42	42	43	42	42	41	38	37	40	41	44	47	47	49	51	53	54	53	50	47	45	44	43	42	45
5	40	38	36	35	35	33	33	39	48	50	51	54	56	56	58	58	59	57	57	55	53	53	52	50	48
6	48	48	48	46	45	44	45	47	48	51	54	55	56	59	58	60	60	59	58	57	55	55	54	53	52
7	52	51	50	49	48	47	48	50	52	54	57	59	61	63	63	65	66	64	60	58	57	57	54	51	56
8	51	49	49	50	48	46	47	50	54	56	58	59	60	62	64	66	66	65	64	62	59	59	59	56	57
9	55	55	55	53	54	53	54	55	58	60	61	63	64	65	67	68	68	69	67	65	63	62	60	56	60
10	51	47	45	42	41	38	37	37	34	33	37	40	43	46	47	48	48	47	46	43	42	42	42	42	42
11	40	38	37	36	36	36	37	42	47	49	51	53	55	57	58	59	59	58	57	56	55	53	52	48	49
12	49	49	52	47	45	45	47	52	56	57	58	59	59	60	61	61	61	58	53	53	53	52	50	49	54
13	48	47	46	46	47	46	46	49	54	55	57	57	57	55	57	58	58	43	40	40	40	40	40	40	49
14	39	39	38	36	31	30	31	31	32	34	34	35	37	40	39	39	40	40	39	38	40	38	38	38	36
15	38	39	39	39	38	38	39	41	43	46	48	47	46	45	47	43	41	42	38	38	39	39	38	38	41
16	38	36	37	38	40	40	42	44	45	47	49	51	53	55	56	55	55	55	54	54	51	43	37	34	46
17	33	33	32	31	31	30	30	39	43	45	45	48	50	52	55	54	52	52	49	44	42	41	39	38	42
18	36	34	32	30	30	30	32	38	40	42	43	44	45	46	46	45	45	45	41	36	34	34	33	33	38
19	31	31	29	30	30	30	30	34	39	41	42	43													34
20																									
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25																									
26																									
27																									
28																									
29																									
30																									
31																									
MEAN	44	43	43	42	41	40	41	44	47	48	50	51	53	54	55	55	55	54	51	50	49	47	46	45	

TOTAL NUMBER OF OBSERVATIONS = 5299. MEAN = 48.

: INDICATES CALIBRATION DURING THE HOUR

HOURLY TOTAL SOLAR RADIATION(LANGLEY)
TRAILER NO. = 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	0	0	0	0	0	0	12	18	36	41	56	27	33	35	49	23	30	22	4	0	0	0	0	0	386
2	0	0	0	0	0	2	14	31	46	63	72	79	7	71	68	55	37	23	2	0	0	0	0	0	570
3	0	0	0	0	0	1	6	18	22	38	39	39	19	46	52	18	27	18	8	0	0	0	0	0	351
4	0	0	0	0	0	1	6	23	49	41	34	55	43	32	37	39	39	10	2	0	0	0	0	0	411
5	0	0	0	0	0	2	15	33	49	63	72	80	81	77	68	57	39	13	7	0	0	0	0	0	656
6	0	0	0	0	0	3	17	26	37	58	77	83	77	58	40	54	36	16	7	0	0	0	0	0	589
7	0	0	0	0	0	2	17	34	50	63	74	75	79	72	64	56	40	15	3	0	0	0	0	0	644
8	0	0	0	0	0	3	15	33	50	63	74	80	70	50	67	55	40	24	7	0	0	0	0	0	631
9	0	0	0	0	0	3	16	33	50	62	73	73	75	66	60	57	42	33	11	0	0	0	0	0	654
10	0	0	0	0	0	2	8	8	7	22	21	51	64	52	57	59	42	25	8	0	0	0	0	0	426
11	0	0	0	0	0	3	18	35	52	64	71	81	69	70	46	38	36	8	4	0	0	0	0	0	595
12	0	0	0	0	0	3	18	35	52	55	64	58	47	57	54	28	23	14	3	0	0	0	0	0	511
13	0	0	0	0	0	2	17	33	46	43	74	23	16	31	54	34	6	3	1	0	0	0	0	0	383
14	0	0	0	0	0	0	3	8	16	11	10	29	32	38	16	23	16	5	2	0	0	0	0	0	209
15	0	0	0	0	0	1	9	34	32	50	56	27	26	65	41	12	16	5	0	0	0	0	0	0	374
16	0	0	0	0	0	3	18	33	50	65	78	82	83	79	68	38	16	11	2	0	0	0	0	0	626
17	0	0	0	0	0	4	17	35	51	65	76	82	81	77	63	40	30	19	3	0	0	0	0	0	643
18	0	0	0	0	0	4	19	37	50	64	73	85	82	80	71	59	50	37	6	0	0	0	0	0	717
19	0	0	0	0	0	5	20	37	54	68	74	52	75	51	29	19	8	10	4	0	0	0	0	0	506
20	0	0	0	0	0	6	14	34	46	57	64	42	34	36	45	37	40	25	7	0	0	0	0	0	487
21	0	0	0	0	0	5	20	37	53	68	65	72	80	74	67	60	33	25	8	0	0	0	0	0	667
22	0	0	0	0	0	6	19	36	53	55	74	59	65	55	47	51	30	13	6	0	0	0	0	0	569
23	0	0	0	0	0	5	17	32	39	27	40	67	59	43	43	26	18	21	5	0	0	0	0	0	442
24	0	0	0	0	0	6	18	11	47	50	71	61	63	44	46	41	24	13	3	0	0	0	0	0	498
25	0	0	0	0	0	2	4	25	48	25	62	78	72	82	49	39	25	17	11	0	0	0	0	0	539
26	0	0	0	0	0	1	4	7	20	23	20	69	53	56	44	43	21	14	6	1	0	0	0	0	382
27	0	0	0	0	0	4	15	13	20	35	48	57	52	22	37	25	15	16	4	0	0	0	0	0	363
28	0	0	0	0	0	2	19	31	51	66	26	20	43				5	5	3	0	0	0	0	0	271
29	0	0	0	0	0	7	21	37	53	67	75	66	88	83	73	61	33	26	10	0	0	0	0	0	700
30	0	0	0	0	0	5	20	37	52	66	76	83	84	80	71	59	44	28	9	0	0	0	0	0	714
31	0	0	0	0	0	6	21	38	53	66	76	82	83	79	70	58	43	27	11	1	0	0	0	0	714
TOTAL/10	0	0	0	0	0	9	45	88	133	160	186	191	183	176	159	126	90	54	16	0	0	0	0	0	

TOTAL NUMBER OF OBSERVATIONS = 8848. TOTAL = 16228.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

```
                   TEMPERATURE CHANGE FROM 30' TO 100' (DEG F*10)
                    TRAILER NO. - 23  PERIOD( 5/ 1/77 TO  5/31/77)

                                           HOUR
        1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24 MEAN
DAY

1      21  11  10   8  13   0   0 - 9 -12 -13 -18 -14 -14 -14 -15 -12 -11 -11 - 7 - 4   0   0   7   4    -3
2       0   4   7   4   9   2   0 - 8 -14 -16 -18 -18     -20 -19 -16 -13 -12 - 5  11  28  12  14  13    -2
3      11  18  13  21  14  17   9 - 5 -10 -12 -15 -16 -12 -15 -21 -12 -14 - 9 - 8 - 3   1 - 4 - 2 - 4    -3
4     - 3   0   0   4   7   7   2 -11 -15 -14 -13 -15 -14 -12 -12 -14 -15 - 9 - 7 - 6 - 4 - 2   2   0    -6
5       0 - 1   3   2   5  11 - 3 - 8 -14 -17 -18 -22 -26 -24 -22 -21 -16 -10 - 8 - 6 - 6 - 1 - 5 - 5   -10
6     - 3   4 - 1 - 3 - 2 - 4 - 8 -11 -14 -19 -24 -25 -24 -23 -19 -20 -15 -11 - 8   0   6  16  14   9    -8
7       9   5   5   7   8  10 - 6 -12 -15 -19 -17 -20 -21 -23 -22 -21 -15 -11 - 6   0  10   7  40  28    -3
8      18  19  16  19  21   9  16 - 8 -14 -16 -20 -22 -23 -18 -19 -19 -16 -13 - 8   5  33  38  44  21     2
9      21  17  18  24  31  16 - 1 -12 -15 -16 -18 -17 -20 -21 -19 -20 -15 -15 -10 - 1  14  10   0 - 4    -3
10    - 6 - 5 - 3 - 2 - 4 - 4 - 8 - 9 - 8 - 9 - 9 -13 -16 -17 -20 -19 -13 -11 - 7   0  13  31  41  30    -4
11     21  22  14  15   8   2   1 - 7 -15 -17 -18 -20 -19 -19 -16 -15 -13 - 9 - 5   7  30  20  48  17     0
12     23  18  29   9   4   5  14 - 5 -14 -16 -18 -21 -17 -16 -15 -13 -12 -12 - 8 - 5 - 5 - 4 - 3   0    -4
13      6   3   1   7  17   8 - 3 - 9 -12 -12 -15 -12 -12 -12 -14 -15 -11 -18 - 5 - 4   0   0   2   0    -5
14      0   5   5 - 1 - 5 - 6 - 6 - 7 - 9 - 9 - 8 -10 -10 -11 - 8 - 8 - 8 - 6 - 5 - 5 - 4 - 4 - 3 - 2    -6
15    - 2 - 3 - 3 - 5 - 4 - 2 - 4 -10 -10 - 9 -11 -11 -11 -11 -13 - 1 - 7 - 6 - 5 - 3 - 3 - 1 - 2   0    -7
16      4 - 1   2  11   8   9 - 1 - 8 -11 -13 -17 -23 -28 -29 -26 -19 - 9 - 7 - 4 - 4 - 4 - 5 - 6 - 5    -8
17    - 5 - 6 - 6 - 6 - 6 - 6 - 7 - 9 -15 -18 -15 -17 -21 -23 -19 -14 -12 -11 - 8 - 7 - 5 - 5 - 5 - 4   -11
18    - 3 - 4   0   1   0   2 - 4 -10 -14 -17 -18 -20 -19 -19 -17 -15 -12 -13 - 8 - 5 - 2   1  10  18    -8
19     13  11  13  14  21  11 - 2 - 8 -12 -14 -14 -14                                                      1
20
21
22
23
24
25
26
27
28
29
30
31
MEAN    6   5   6   6   7   4  -1 -10 -14 -16 -17 -18 -19 -19 -19 -16 -14 -12  -8  -2   5   5  10   6

              TOTAL NUMBER OF OBSERVATIONS =   5301.    MEAN  =     -5.

          : INDICATES CALIBRATION DURING THE HOUR
```

CORPORATION

```
             TEMPERATURE CHANGE FROM 30' TO 200' (DEG F*10)
              TRAILER NO, - 23  PERIOD( 5/ 1/77 TO  5/31/77)

                                                    HOUR
        1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

 1     34   21   15    7   13    0    0  -14  -15  -22  -13  -19  -22  -21  -18  -20  -18  -21  -17  - 9    0  - 3    5    4    -6
 2    - 3    0    3    0   20    4   12  -15  -23  -25  -24  -25       -22  -20  -22  -19  -14  -12    7   31   10   16    9    -5
 3      7   22   24   33   25   18    5  -12  -19  -20  -16  -18  -17  -29  -33  -24  -22  -23  -21  -12    1  -11  -12  -15    -7
 4    -16  - 7  - 6    0    5    6    2  -24  -23  -26  -19  -16  -25  -21  -20  -14  -11  -13  -17  -16  -14  -11    0  - 4   -13
 5    - 9  -11  - 1  - 1  - 1    4  -11  -18  -22  -21  -23  -22  -21  -24  -21  -19  -16  -20  -18  -15  -17  - 9  -13  -17   -15
 6    - 9    3  - 8  -13  -12  -15  -19  -21  -22  -18  -21  -21  -24  -22  -22  -18  -15  -18  -17  - 3    4   17   14   13   -12
 7     12    5    2    3    4    7  -15  -24  -26  -31  -31  -31  -31  -27  -32  -22  -16  -12  -13  - 2   10    7   44   31    -8
 8     21   20   22   41   28    5   18  -17  -26  -26  -26  -36  -37  -28  -28  -18  -15  -15  -14    5   42   47   57   42     2
 9     36   33   26   33   39   23  - 2  -24  -27  -27  -30  -30  -32  -32  -26  -28  -25  -24  -17  - 5   22   14  - 1  -10    -5
10    -15  -16  -13  -11  -14  -15  -21  -17  -21  -21  -21  -24  -22  -13  -18  -11  - 7  -17  -18  - 8    5   22   44   40   -10
11     39   34   21   16    0    0    0  -17  -30  -28  -30  -32  -25  -25  -23  -19  -15  -18  -13    3   25   17   50   26    -2
12     37   30   45   17    0   10   31  -10  -24  -23  -28  -30  -29  -28  -28  -24  -23  -17  -19  -15  -13  -12  -11  - 2    -7
13      2    0    0    4   21    5  -12  -22  -22  -24  -28  -23  -22  -21  -26  -25  -20  -22  -17  -15  - 7  - 7  - 5  - 2   -13
14    - 8    1    0  - 7  -16  -17  -15  -21  -24  -23  -23  -24  -22  -16  -19  -18  -13  -16  -21  -16  -12  -19  -15  -21   -17
15    -15  -16  -14  -16  -15  -11  -13  -22  -20  -10  - 8  -22  -22  -21  -27  -15  =17  -17  -17  -12  -13  -10  - 9  - 7   -16
16      0  - 4  - 1   11    8    4  - 8  -19  -22  -24  -28  -34  -31  -29  -28  -27  -16  -14  -13  -11  -12  -15  -18  -20   -15
17    -19  -20  -21  -21  -18  -20  -22  -22  -17  -23  -16  -15  -22  -20  -16  -14  -20  -19  -19  -19  -17  -18  -17  -17   -20
18    -15  -17  -10  - 8  - 9    0  -15  -19  -21  -20  -21  -18  -19  -17  -17  -20  -11  -12  -18  -19  -15  - 7    1    8   -14
19     11    8   11    4   19   17  - 7  -24  -27  -27  -27  -27                                                                 -6
20
21
22
23
24
25
26
27
28
29
30
31
MEAN    4    4    4    4    4    1   -5  -20  -24  -24  -24  -26  -26  -24  -24  -21  -18  -18  -18  -10    0   -0    6    2

               TOTAL NUMBER OF OBSERVATIONS =   5301.    MEAN  =    -11.

         : INDICATES CALIBRATION DURING THE HOUR
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CORPORATION

DIURNAL VARIATION OF BAROMETRIC PRESSURE
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	787	787	788	787	787	787	787	787	788	788	789	789	790	790	789	789	789	789	789	789	790	790	790	790	788
2	790	790	790	790	790	790	790	791	791	791	791	790		789	789	788	788	788	788	788	788	789	789	788	789
3	788	788	787	787	787	787	787	787	786	786	786	786	786	785	784	784	783	782	782	782	782	782	781	781	785
4	781	781	781	781	781	781	781	783	783	783	783	782	782	782	781	781	781	781	781	782	783	783	783	783	782
5	782	782	782	782	782	782	782	781	781	780	780	779	779	778	778	777	777	776	776	776	777	777	777	778	779
6	779	779	779	779	779	780	780	781	781	782	782	782	782	782	782	782	782	782	782	782	783	784	784	785	781
7	785	785	786	786	786	787	787	788	788	788	788	787	787	786	786	785	785	785	785	786	786	787	787	788	786
8	788	788	788	789	789	789	789	790	790	790	790	790	789	789	788	787	787	787	787	787	787	787	787	787	788
9	788	788	788	788	788	788	788	788	787	787	786	786	785	784	783	782	782	781	781	781	781	781	781	781	784
10	782	782	783	783	784	784	784	785	785	785	786	786	786	786	785	785	785	785	785	785	785	786	786	786	784
11	786	786	786	786	786	786	787	787	787	787	787	787	787	786	785	785	785	785	786	786	786	787	787	787	786
12	787	787	788	788	788	789	789	789	789	790	790	790	790	789	788	788	787	787	787	788	787	787	788	788	788
13	788	788	788	788	788	788	788	788	788	787	786	785	785	784	783	782	782	784	785	785	786	786	786	785	786
14	784	783	783	783	783	784	784	784	783	783	783	783	782	781	781	781	781	781	781	781	781	782	782	783	782
15	783	783	783	784	784	784	785	785	785	785	785	785	785	784	783	783	784	784	784	784	784	784	784	784	784
16	783	783	783	783	783	783	783	783	783	782	782	781	780	779	779	779	779	778	778	779	779	780	782	783	781
17	783	783	784	784	784	784	784	784	783	783	783	783	782	782	781	781	781	781	781	782	782	782	783	783	782
18	783	783	783	783	784	784	784	784	784	784	784	785	785	785	785	785	785	786	786	787	788	788	789	788	785
19	789	789	789	789	789	789	790	790	790	789	789	789	789	788	788	788	788	788	788	788	789	790	790	790	789
20	789	789	789	788	788	788	789	789	788	788	788	788	788	788	787	787	787	787	787	788	788	789	789	789	788
21	789	789	789	789	789	789	789	790	789	789	789	788	788	788	787	787	787	787	787	787	787	788	788	787	788
22	787	787	787	787	787	787	787	787	787	787	787	787	786	786	785	785	785	785	785	785	785	785	785	785	786
23	785	785	784	784	784	785	785	785	785	785	786	785	785	784	780	783	783	782	782	782	782	783	783	784	784
24	784	784	784	784	784	784	784	785	785	784	784	784	784	783	784	784	784	784	784	785	786	786	786	786	784
25	786	786	786	786	786	786	786	786	786	786	786	786	785	785	785	785	785	785	785	785	786	786	786	787	785
26	786	786	786	786	786	786	786	787	787	786	786	786	786	785	785	785	785	785	785	785	785	786	786	785	786
27	785	785	785	785	785	785	785	786	786	786	785	786	785	786	786	785	785	785	785	786	786	787	787	787	785
28	787	786	786	786	787	787	787	787	787	786	786	786	786					785	786	786	786	787	787	787	786
29	787	787	787	787	787	787	787	787	787	787	786	786	786	785	785	785	785	785	786	787	788	789	789	789	786
30	790	790	790	791	791	792	793	793	793	794	794	794	794	794	794	793	793	793	794	794	794	795	795	795	793
31	795	795	795	795	796	796	797	797	797	797	797	797	797	796	796	795	795	795	795	795	795	795	795	795	795
MEAN	786	786	786	786	786	786	786	787	787	786	786	786	786	785	785	785	784	784	785	785	785	786	786	786	

TOTAL NUMBER OF OBSERVATIONS = 8842. MEAN = 786.

: INDICATES CALIBRATION DURING THE HOUR

RADIAN
CORPORATION

DIURNAL VARIATION OF HORIZONTAL BI-VANE WIND DIRECTION AT 200 FEET
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	196	197	205	184	168	173	191	203	211	206	215	203	204	209	218	207	217	213	244	109	60	101	154	224	188
2	225	298	249	119	76	128	103	260	213	216	215	223		221	225	212	219	223	231	226	216	202	204	189	204
3	170	171	167	167	158	152	166	160	202	217	222	213	209	177	180	171	188	173	180	158	159	198	179	198	181
4	198	188	230	240	254	250	316	315	302	313	311	300	303	284	261	232	224	236	290	324	319	312	310	251	273
5	216	262	265	270	254	226	169	127	202	212	206	207	216	208	209	206	205	198	203	208	214	195	216	213	213
6	203	176	177	171	173	179	189	191	194	208	206	209	206	196	203	211	211	209	204	204	177	167	176	166	192
7	160	167	163	166	163	155	152	173	186	182	166	177	188	194	182	200	205	220	243	246	208	125	180	275	187
8	232	218	91	146	186	175	174	142	182	193	195	178	178	182	188	206	211	214	213	211	223	219	206	188	190
9	178	174	171	162	139	153	162	150	180	185	180	175	178	186	200	192	177	188	193	205	204	201	188	213	181
10	213	226	239	234	226	224	212	225	217	199	222	232	228	178	222	222	205	221	222	215	190	213	221	213	217
11	195	182	162	176	156	160	162	121	166	190	196	192	204	205	210	215	217	216	213	191	185	201	193	157	186
12	129	156	153	171	157	168	167	137	186	214	189	188	177	174	150	148	155	191	180	146	150	128	150	146	163
13	140	156	154	183	148	146	114	68	220	172	99	166	209	135	95	300	280	199	209	139	153	178	163	153	165
14	153	209	239	234	197	152	130	133	204	187	185	183	210	228	244	224	227	223	215	221	228	230	230	225	205
15	238	243	245	297	247	232	230	244	249	271	283	261	245	234	194	247	197	201	198	154	197	165	166	165	225
16	158	137	170	155	143	145	167	186	189	188	183	188	190	191	196	189	197	200	201	209	234	291	299	274	195
17	293	304	92	201	239	140	152	238	201	198	198	198	201	208	208	213	208	232	280	333	301	279	296	321	231
18	324	325	330	246	87	117	77	202	198	202	204	213	218	216	220	216	239	236	282	319	320	160	128	177	219
19	209	261	198	141	195	182	211	174	222	213	200	217	244	237	305	246	238	316	284	72	205	261	47	88	207
20	118	189	250	122	101	110	232	169	248	320	320	286	307	318	223	317	316	202	176	327	327	311	310	298	245
21	309	265	241	227	206	169	215	254	265	198	316	348	305	302	292	316	315	312	282	273	240	228	193	195	261
22	183	132	55	129	177	203	123	174	218	218	215	247	246	220	218	204	214	219	214	207	214	198	197	188	192
23	172	127	139	162	151	161	160	157	185	192	199	192	199	174	199	201	229								176
24								200	202	205	201	196	198	198	197	202	203	225	230	218	175	174	172	180	199
25	157	158	154	184	200	159	147	175	191	202	213	203	213	211	217	220	216	225	225	257	315	344	282	284	215
26	170	139	197	168	184	178	148	239	188	139	219	223	217	219	216	234	308	246	282	322	131	109	148	180	200
27	277	191	162	167	244	242	145	215	238	214	235	199	263	311	309	72	206	68	145	310	237	288	315	210	219
28	130	163	147	209	192	128	151	155	150	208	288	143	323					319	105	116	133	118	163	164	172
29	234	224	176	116	115	110	101	116	233	218	218	199	205	213	237	232	235	285	314	314	251	47	139	135	195
30	206	95	225	259	256	228	130	110	94	334	320	309	316	310	322	325	254	153	66	209	48	100	125	181	207
31	178	221	103	283	273	180	188	110	186	252	333	221	206	257	169	248	124	325	314	323	172	204	213	294	224
MEAN	199	198	185	190	182	171	166	178	204	215	224	216	225	220	217	221	221	223	221	226	206	198	199	205	

TOTAL NUMBER OF OBSERVATIONS = 8676. MEAN = 205.

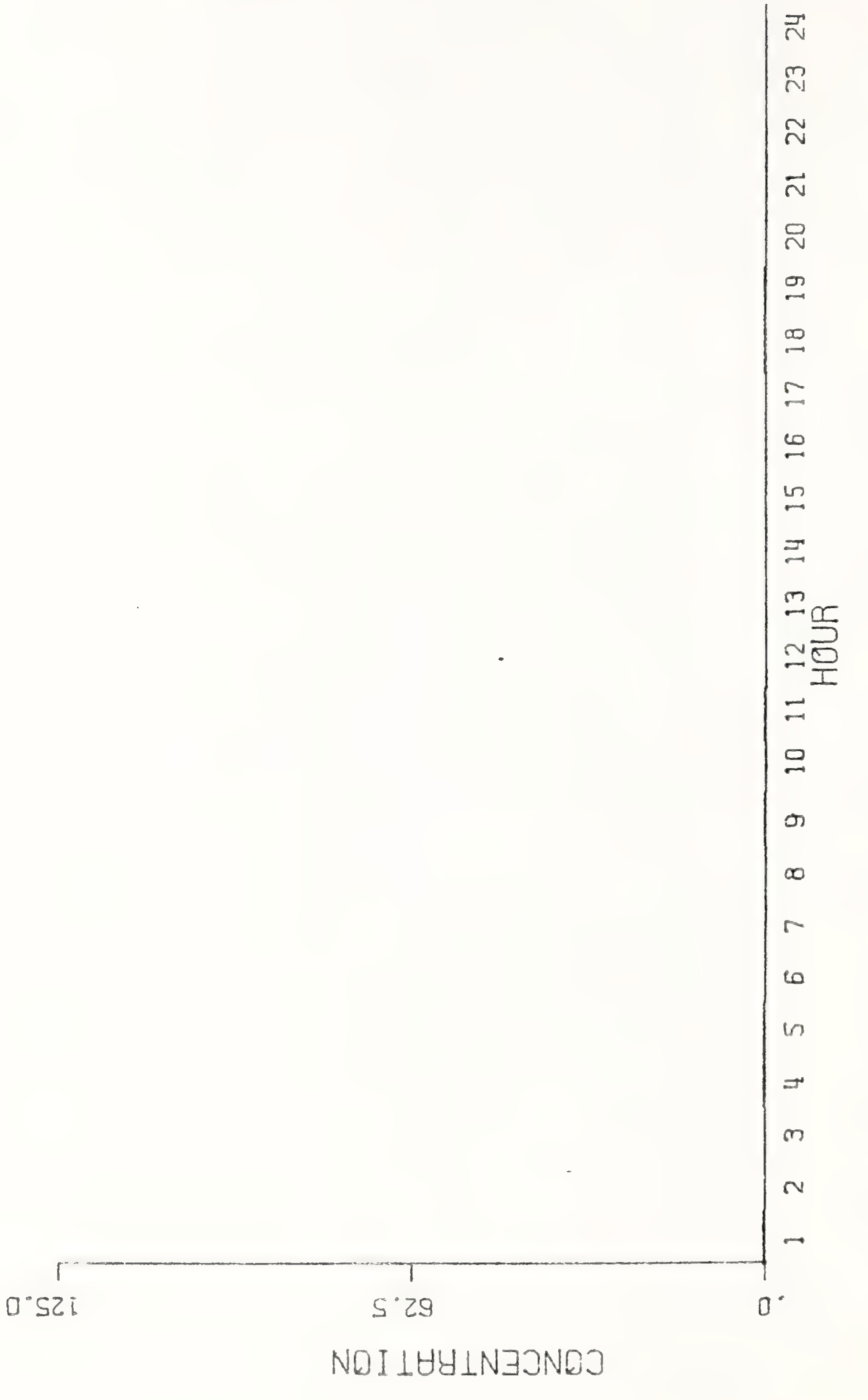
: INDICATES CALIBRATION DURING THE HOUR

DIURNAL VARIATION OF VERTICAL BI-VANE WIND DIRECTION AT 200 FEET
TRAILER NO. - 23 PERIOD(5/ 1/77 TO 5/31/77)

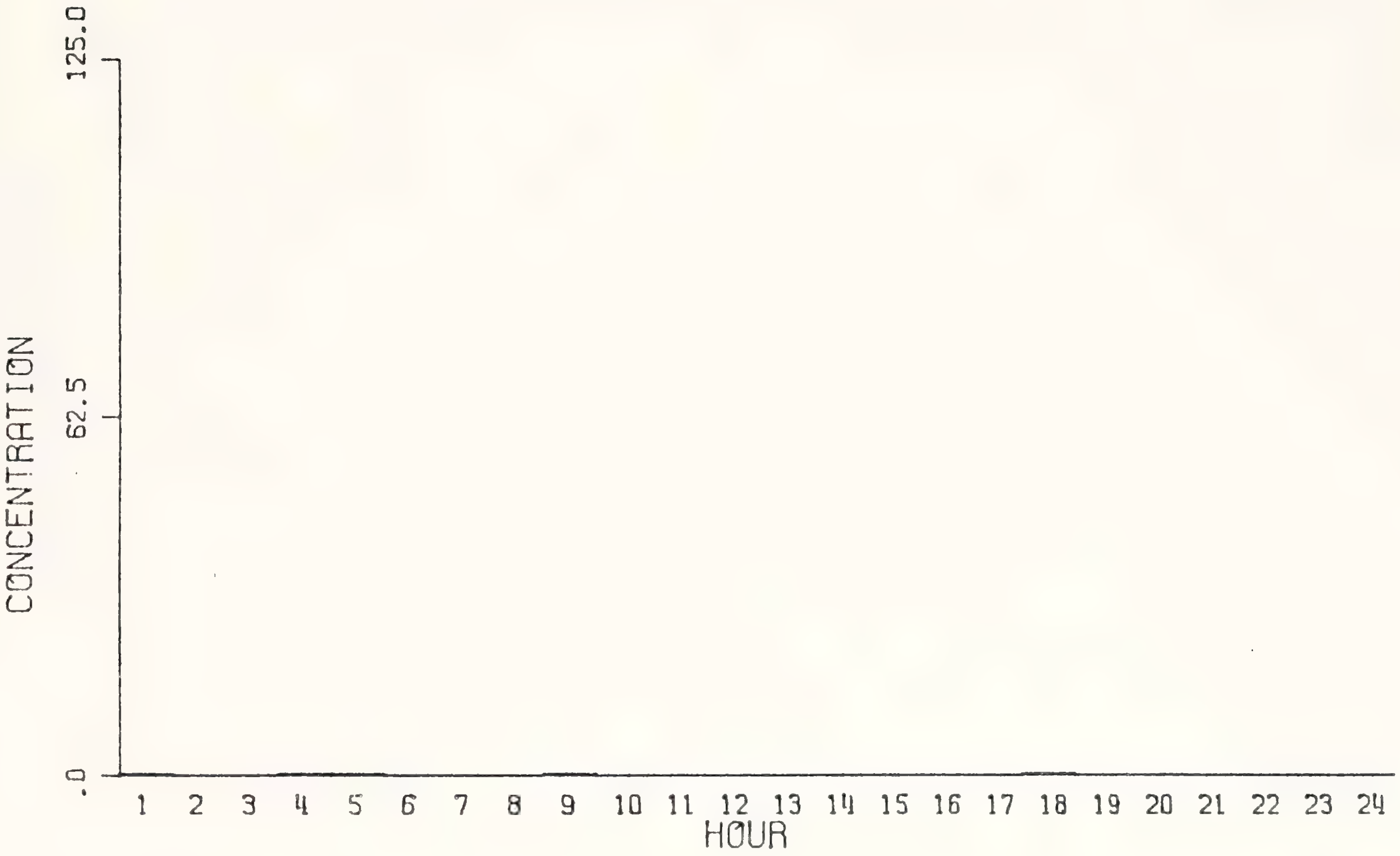
	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	-7	-12	-15	-7	-17	-12	-13	-17	-18	-18	-19	-15	-15	-17	-14	-17	-18	-18	-16	-10	-5	-11	0	-2	-14
2	3	6	3	7	1	6	2	0	-14	-13	-18	-13		-16	-13	-14	-17	-13	-7	-1	-11	7	28	21	-3
3	21	23	23	25	38	38	43	34	1	-7	-8	-7	-6	-4	-2	-2	-1	0	-1	5	5	-9	-11	-11	7
4	-12	-13	-12	-14	-15	-14	-18	-15	-13	-13	-15	-15	-13	-14	-15	-17	-19	-20	-19	4	32	43	8	0	-9
5	-8	-12	-11	-11	-4	-9	0	-12	-18	-19	-20	-20	-21	-20	-20	-19	-20	-18	-17	0	-19	-20	-18	-13	-16
6	-13	-20	-21	-22	-21	-21	-20	-20	-18	-18	-16	-20	-20	-19	-18	-19	-19	-21	-20	-20	0	-5	26	-21	-17
7	-20	17	35	16	42	-7	-8	-8	-16	-17	-14	-13	-18	-17	-16	-17	-20	-19	-17	20	-2	-10	-12	-14	-6
8	-7	-9	-18	-18	-14	-4	-8	8	-14	-21	-17	-16	-20	-20	-18	-17	-18	-19	-19	-3	43	31	39	2	-7
9	2	0	-6	-5	-3	-12	-10	-13	-17	-16	-13	-15	-16	-15	-14	-12	-16	-16	-15	-12	-16	-18	-19	-19	-13
10	-16	-15	-10	-7	-3	-9	-11	-12	-15	-17	-14	-13	-14	-19	-11	-16	-17	-18	-19	-12	0	-19	-8	-8	-14
11	-8	0	0	-4	-6	-11	-14	-13	-2	-7	-16	-18	-15	-16	-12	-15	-14	-15	-14	-3	-7	-19	-16	0	-11
12	-9	-16	-18	-15	-3	-11	-10	8	-2	-5	-11	-12	-7	-3	-8	-7	-9	-2	-3	-7	-10	-11	-15	-7	-9
13	-16	-21	-14	-12	-17	-9	-11	-7	2	-6	1	5	6	-6	-8	-9	-11	-10	-11	-7	-11	-9	-9	-10	-9
14	-8	-10	-7	-9	-19	-28	-22	-23	-21	-17	-12	-11	-10	-9	-8	-10	-12	-13	-12	-14	-16	-17	-17	-17	-15
15	-15	-13	-12	-7	-11	-14	-14	-9	-11	-13	-16	-14	-13	-15	-11	-17	-15	-11	-16	-13	-10	-15	-17	-16	-14
16	-16	-11	-15	-17	-21	-17	-18	-18	-18	-16	-17	-18	-18	-16	-15	-18	-19	-18	-19	-19	-19	-17	-18	-12	-18
17	-16	-13	-8	-8	0	-9	-1	-9	-18	-19	-20	-13	-11	-13	-15	-13	-11	-10	-8	-8	-11	-12	-14	-11	-12
18	-10	-7	-7	-2	-2	-5	-5	-12	-11	-13	-12	-11	-9	-10	-11	-11	-8	-8	-5	7	6	8	7	11	-6
19	7	1	0	-1	0	-4	-3	-1	-8	-8	-9	-9	-3	-7	-9	-8	-8	-6	-6	-6	-2	-8	-7	-2	-5
20	-3	0	3	0	-2	0	1	6	-2	-2	-6	-5	-3	-5	-1	-6	-4	-7	-7	-14	-12	-16	-16	-16	-6
21	-8	-8	-10	-7	-13	-6	-1	-3	-4	-7	-3	-5	-7	-5	-7	-3	-3	-5	-6	-9	-4	-1	6	7	-6
22	8	4	2	-1	-5	-3	-3	-6	-6	-15	-12	-9	-7	-5	-10	-11	-12	-16	-15	0	23	35	-16	-18	-5
23	-18	-14	-4	-5	-9	-5	-2	-3	-6	-15	-14	-15	-16	-19	-13	-5	-8								-11
24								-2	0	0	-7	-6	-7	-6	-6	-6	-6	-4	11	11	-1	-2	-4	-7	-3
25	-4	-5	-5	-8	-13	-10	-9	-6	-7	-6	-5	-5	-5	-5	-7	-8	-7	-7	-7	-5	-3	-1	0	-1	-7
26	0	-3	-6	-9	-8	-8	-7	-1	-9	-4	-7	-6	-6	-8	-8	-7	-6	0	-4	-5	-2	-5	-6	-3	-6
27	-4	1	-2	-4	0	-4	-5	-9	-7	-9	-9	-2	-8	-8	-7	-8	-5	-4	-2	-6	-2	-6	-2	-2	-6
28	-7	-10	-8	-1	-8	-9	-10	-10	-10	-12	-11	-7	-8					-9	-11	-10	-6	-8	-5	0	-9
29	0	-1	-3	-12	-11	-6	-7	-4	-1	-14	-13	-14	-13	-15	-14	-14	-14	-14	-13	-16	-13	-13	-12	-10	-11
30	-9	-9	-1	-12	-3	-2	12	-3	-9	-5	-7	-9	-10	-13	-13	-15	-13	-11	-14	-12	-6	-4	-3	0	-8
31	4	9	18	7	-3	9	2	-5	-10	-10	-8	-3	-7	-1	0	-4	-1	0	-1	10	12	32	7	9	2
MEAN	-7	-6	-5	-6	-6	-7	-6	-7	-11	-13	-13	-12	-12	-13	-12	-13	-13	-12	-11	-6	-3	-4	-5	-6	

TOTAL NUMBER OF OBSERVATIONS = 8671. MEAN = -9.

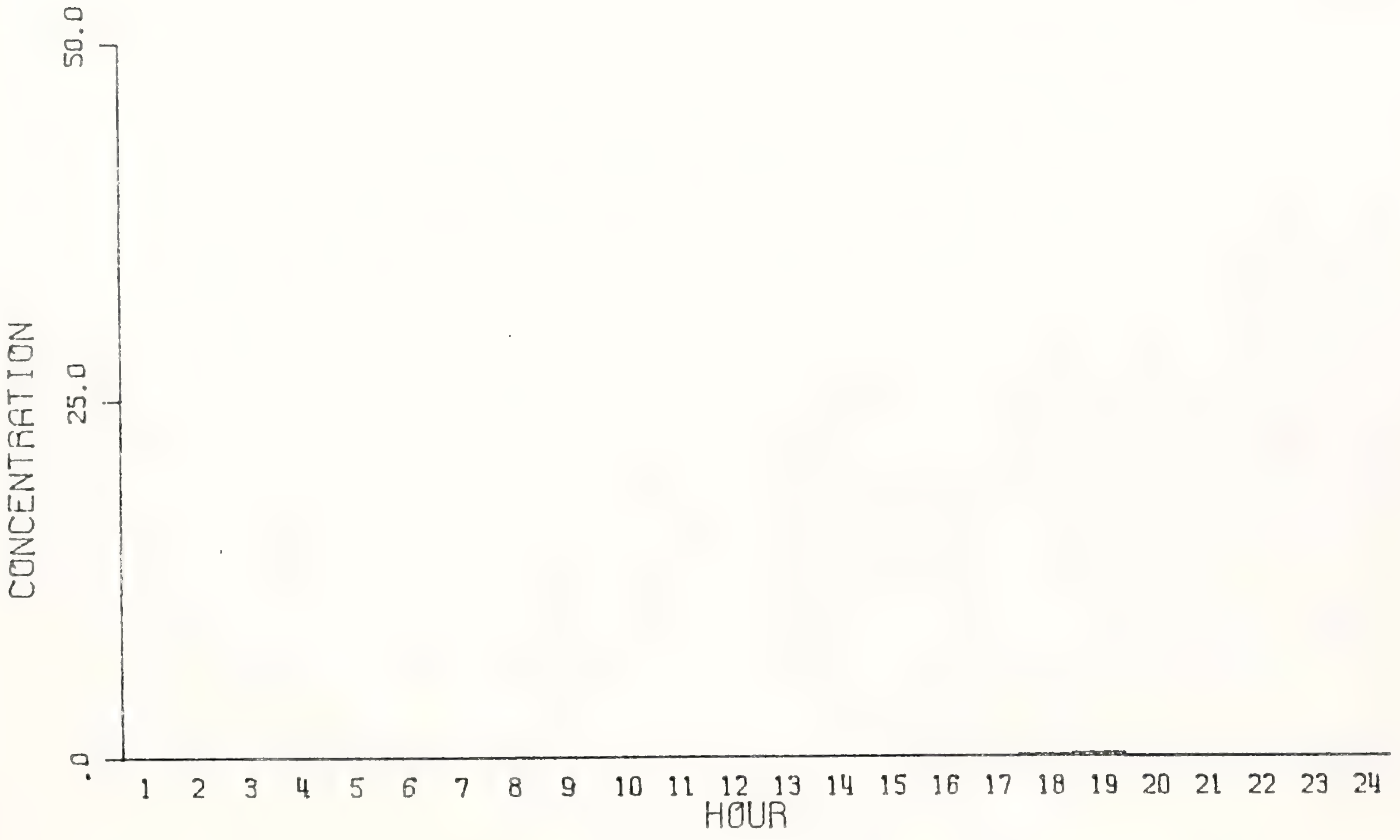
: INDICATES CALIBRATION DURING THE HOUR



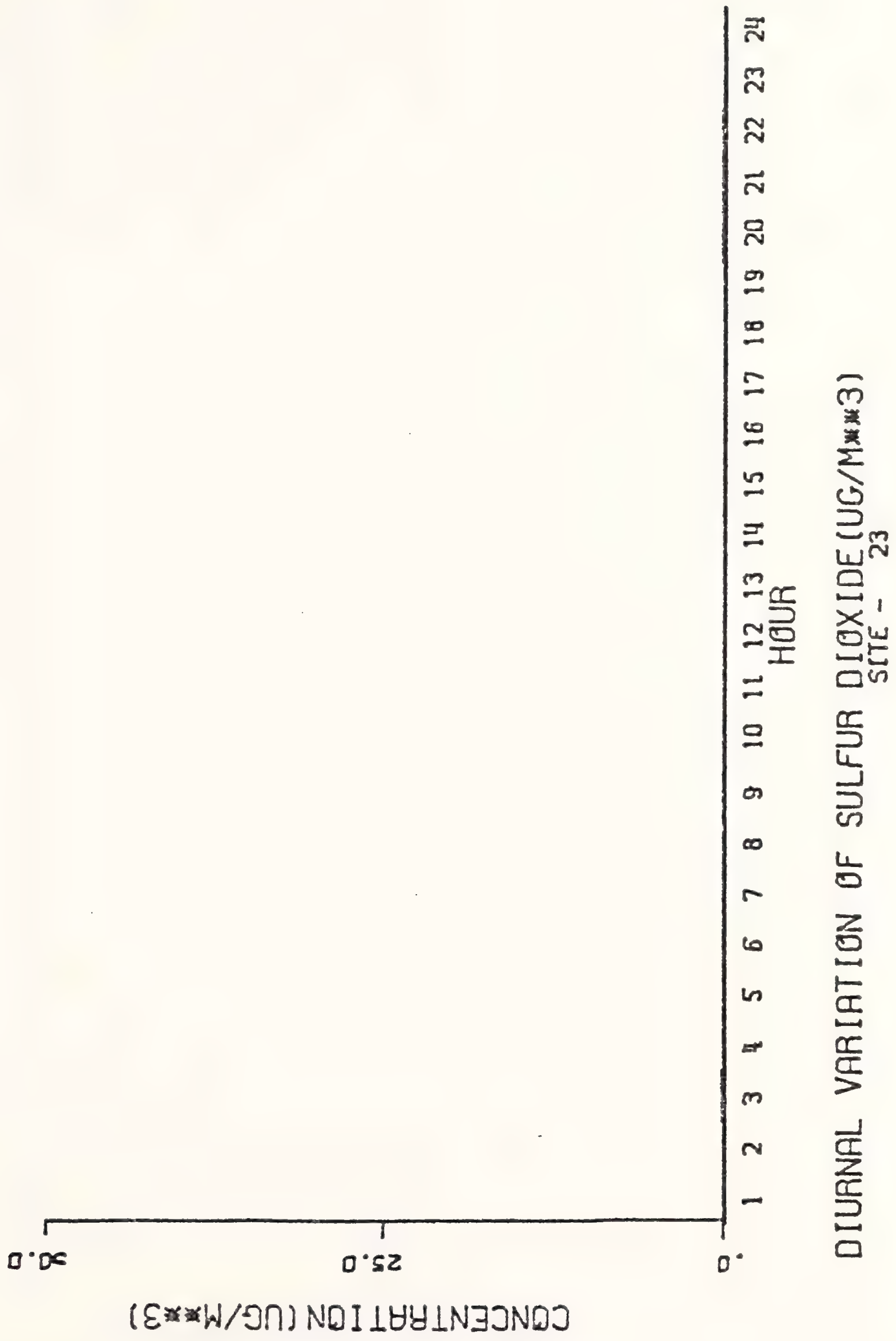
DIURNAL VARIATION OF NITROGEN OXIDES(UG/M**3)
SITE - 23



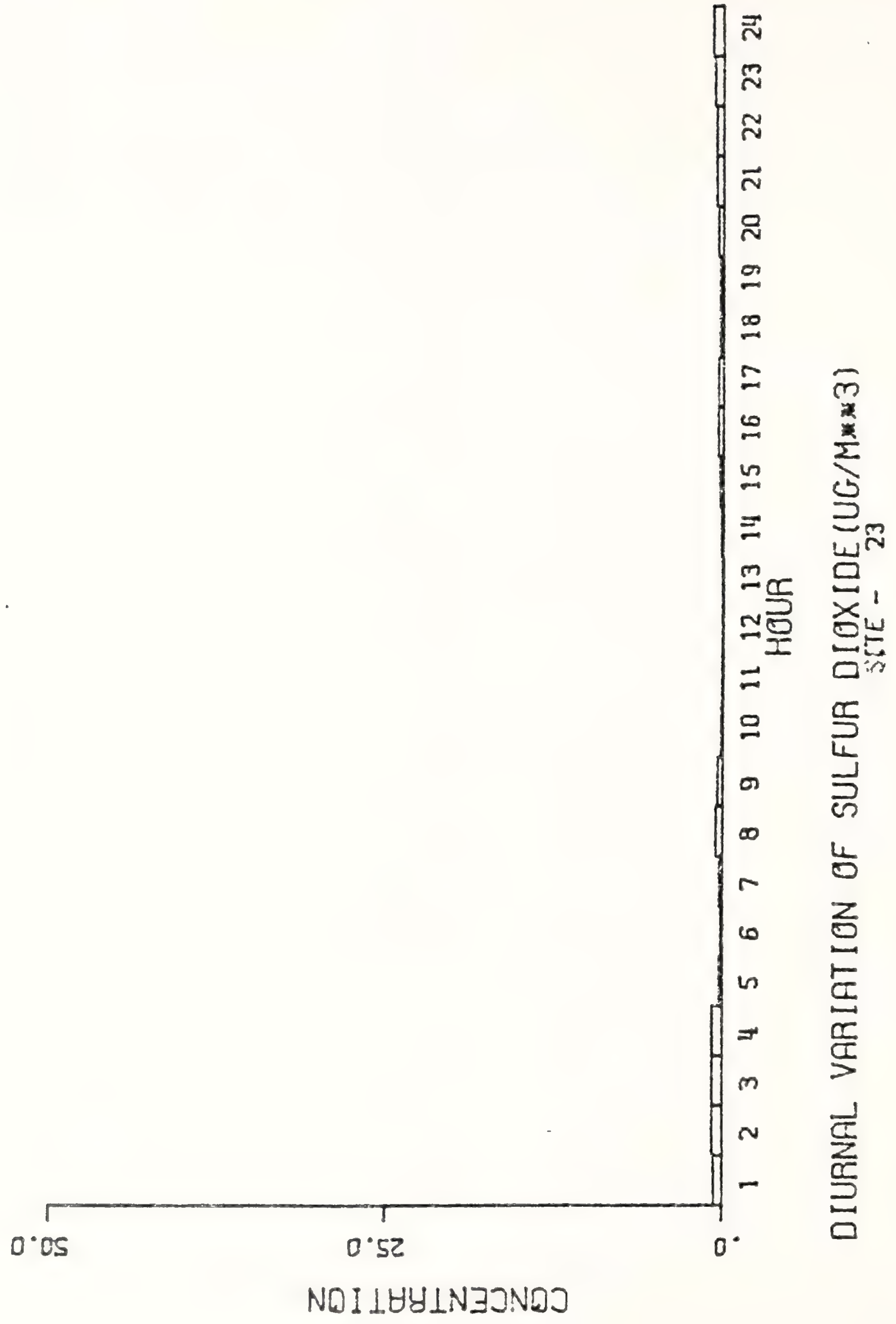
DIURNAL VARIATION OF NITRIC OXIDE(UG/M**3)
SITE - 23



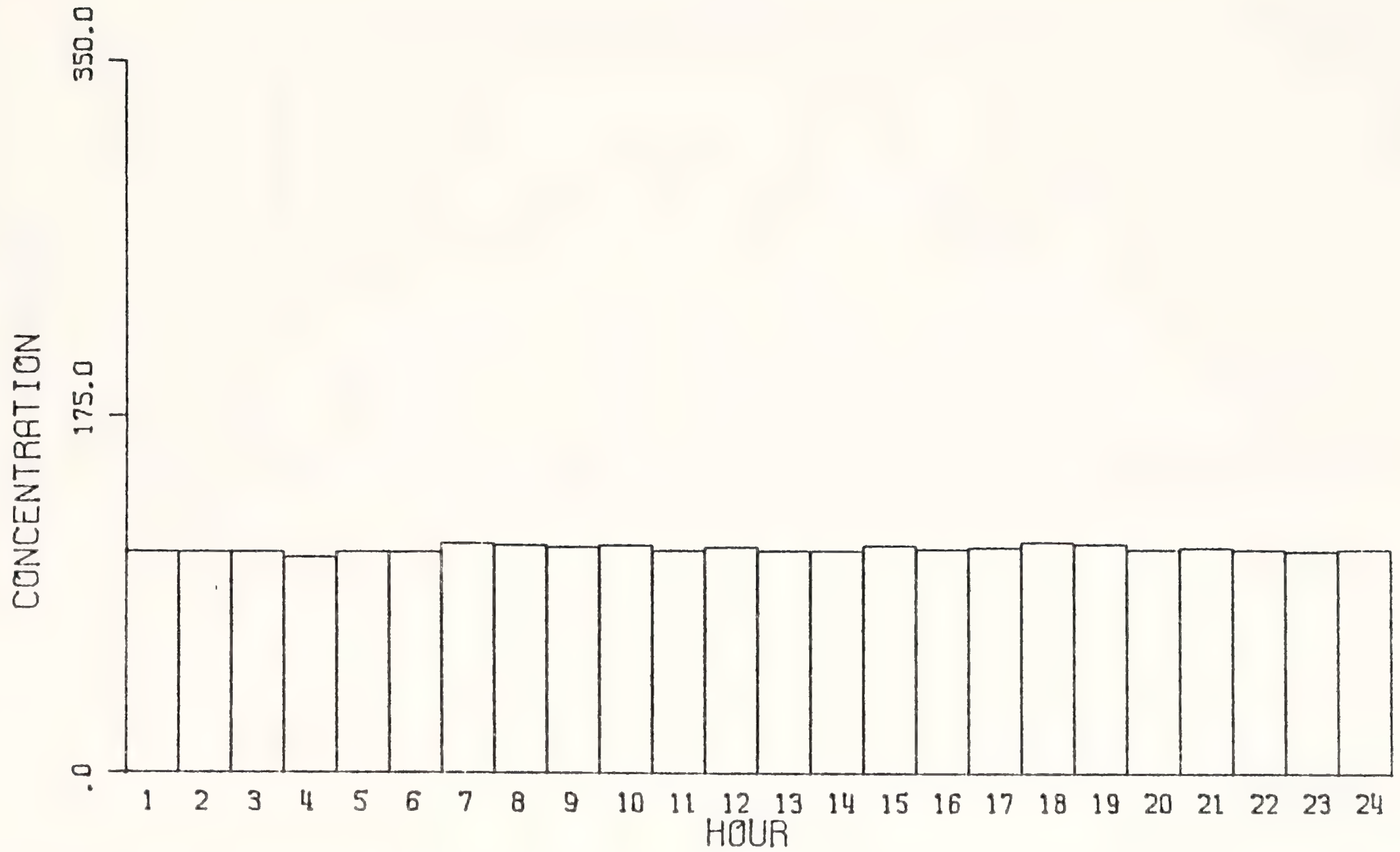
DIURNAL VARIATION OF NITROGEN DIOXIDE(UG/M**3)
SITE - 23



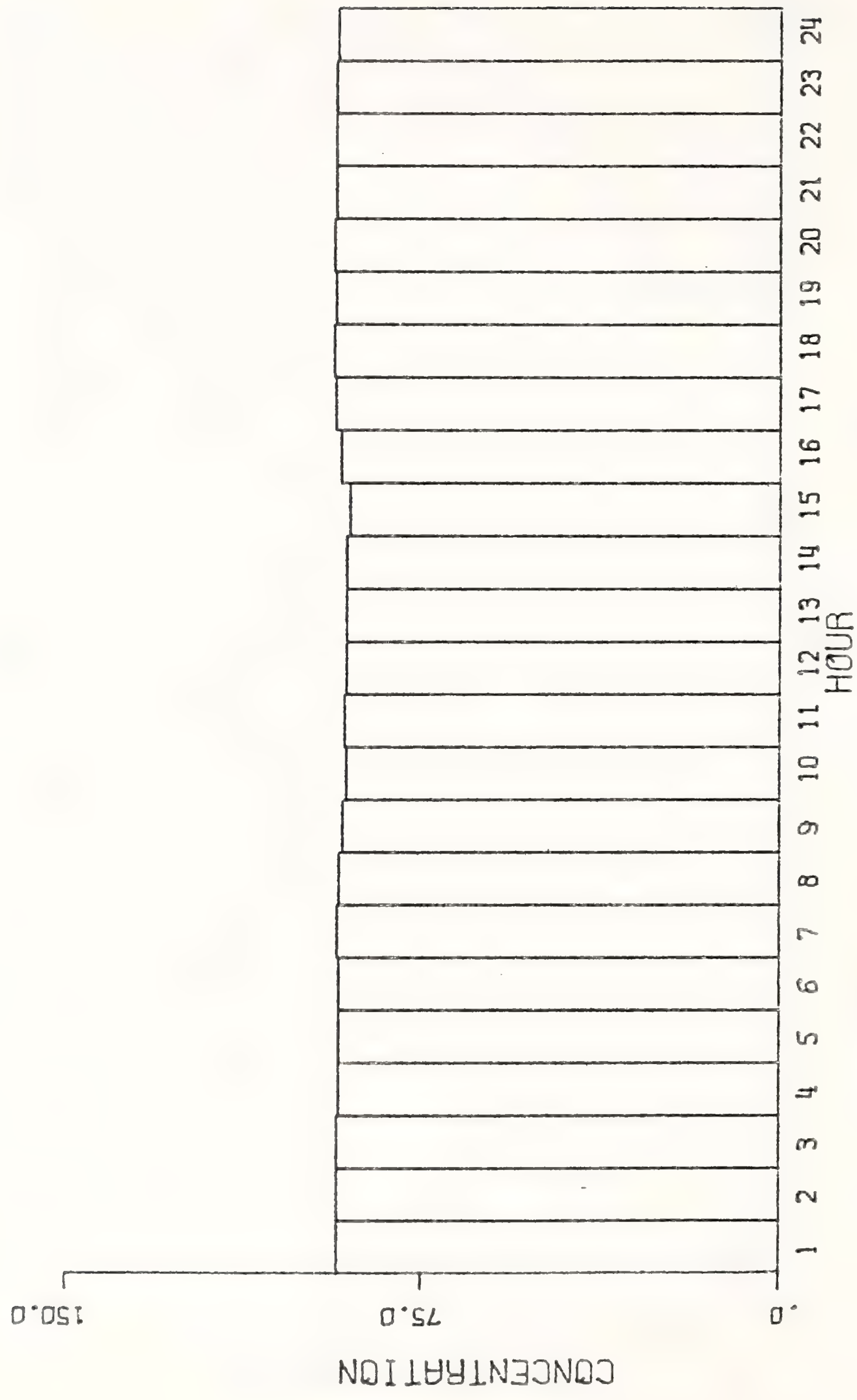
DIURNAL VARIATION OF SULFUR DIOXIDE (UG/M**3)
SITE - 23



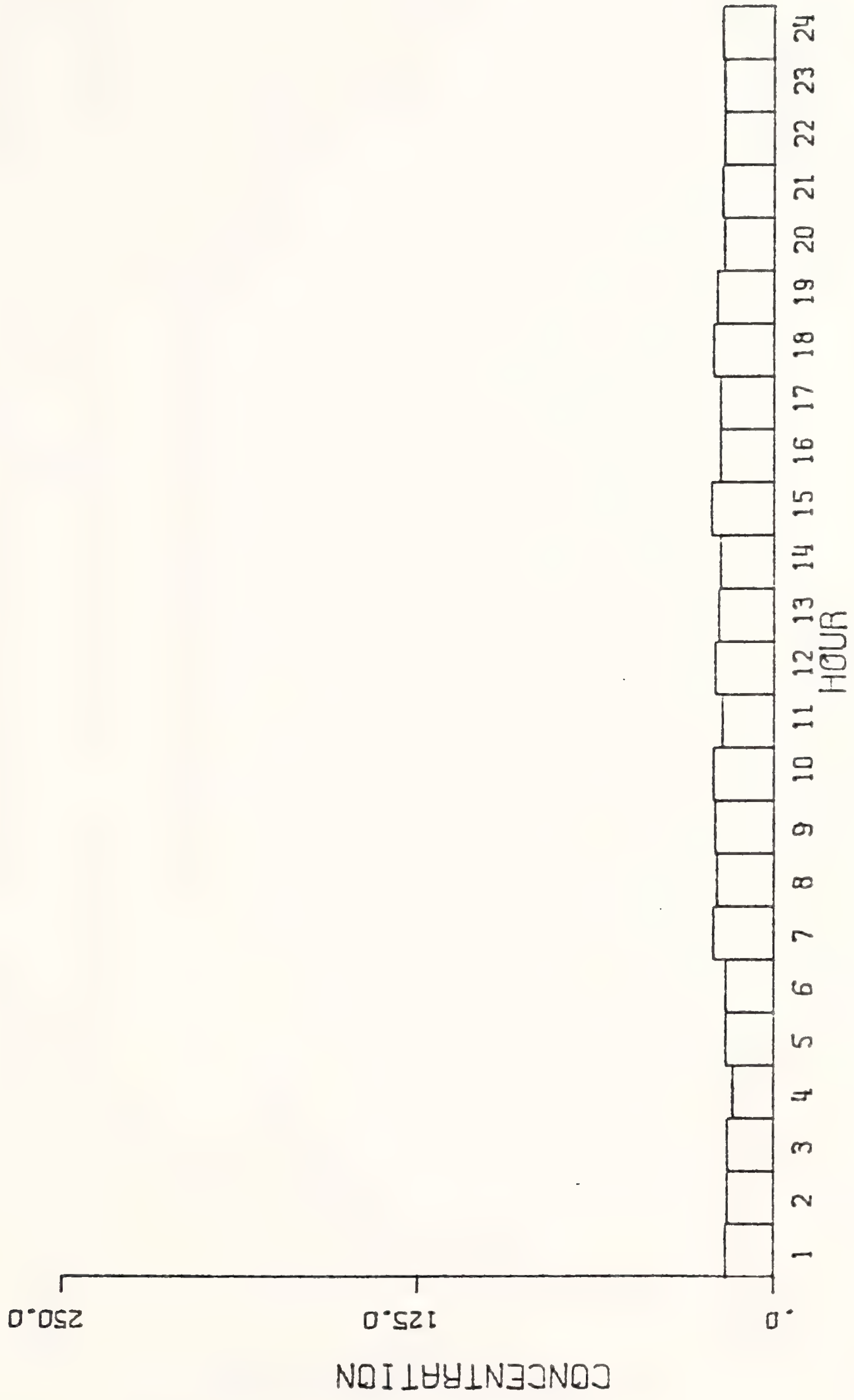
DIURNAL VARIATION OF SULFUR DIOXIDE(UG/M**3)
SITE - 23



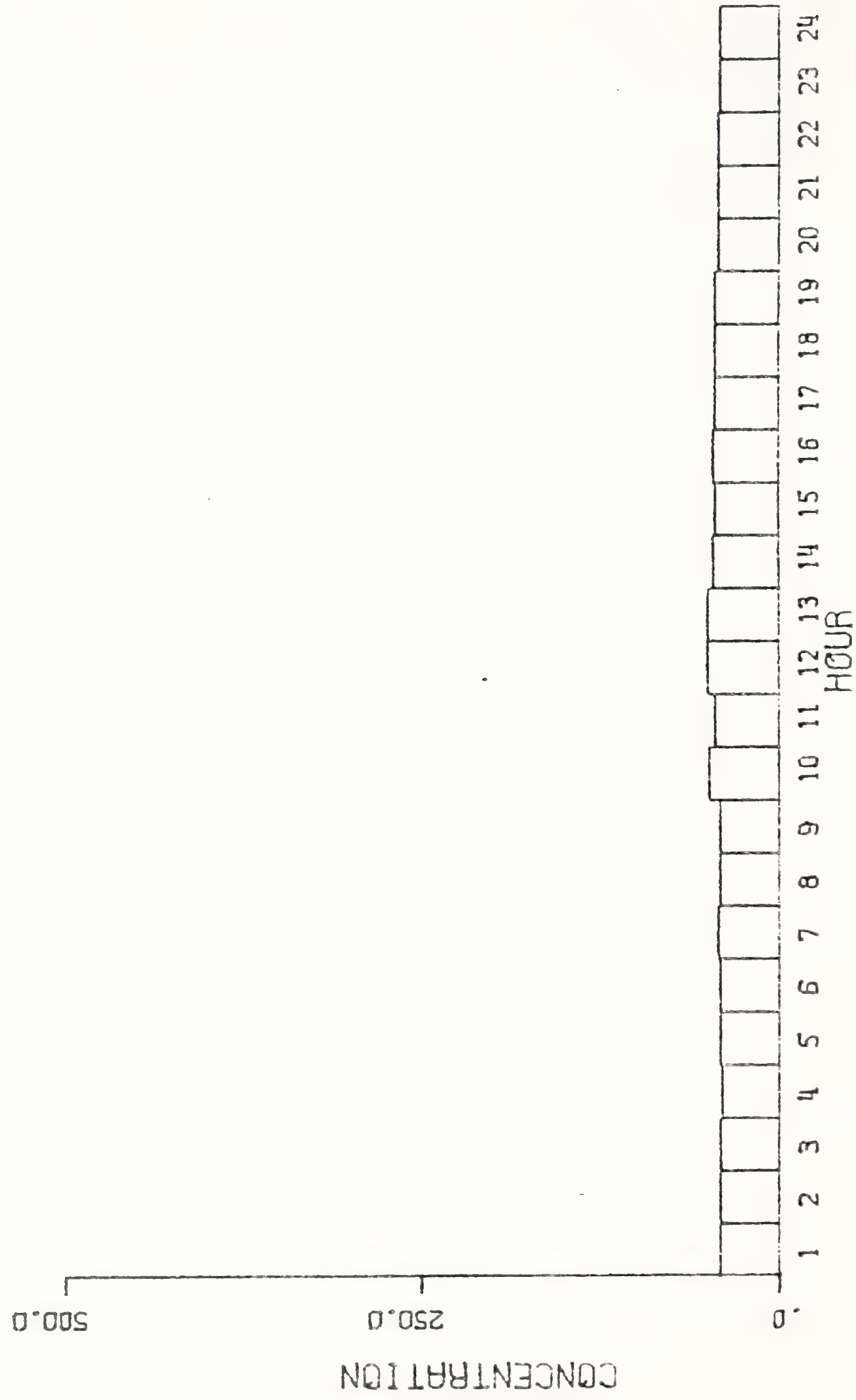
DIURNAL VARIATION OF TOTAL HYDROCARBONS(UG/M**3 X 10**-1)
SITE - 23



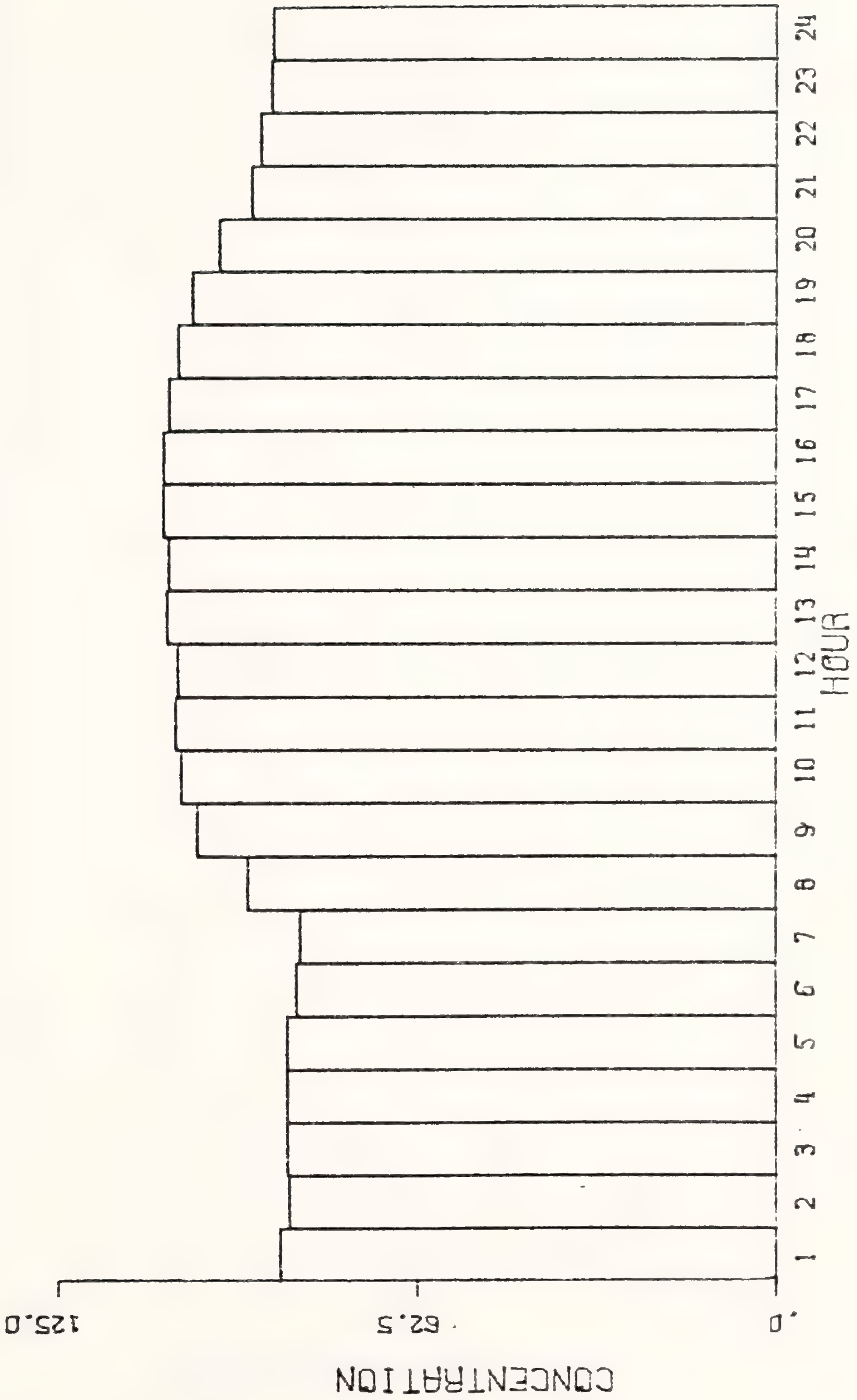
DIURNAL VARIATION OF METHANE(UG/M**3 X 10**-1)
SITE - 23



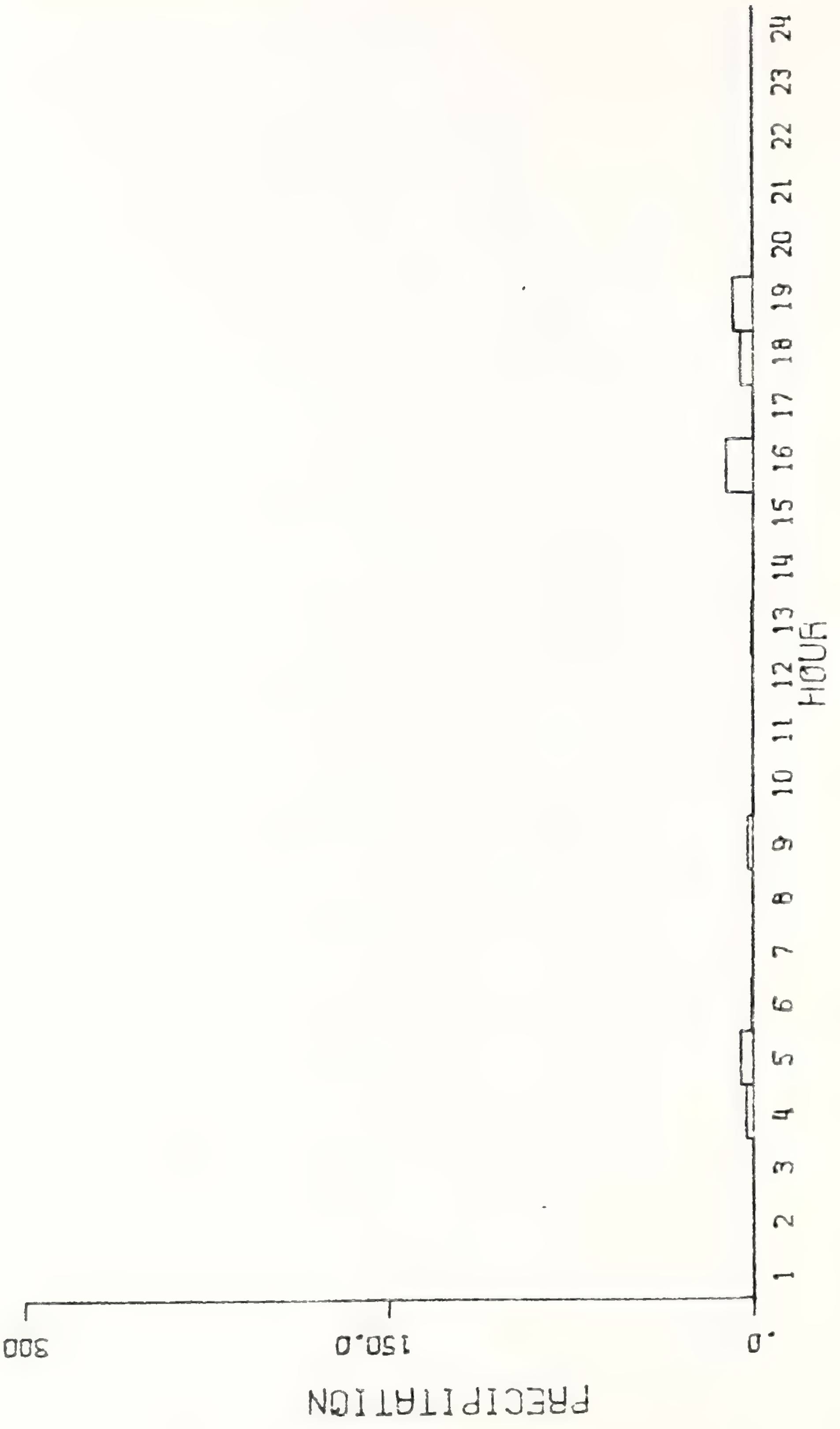
DIURNAL VARIATION OF NON-METHANE HYDROCARBONS (UG/M**3 X 10**-1)
SITE - 23



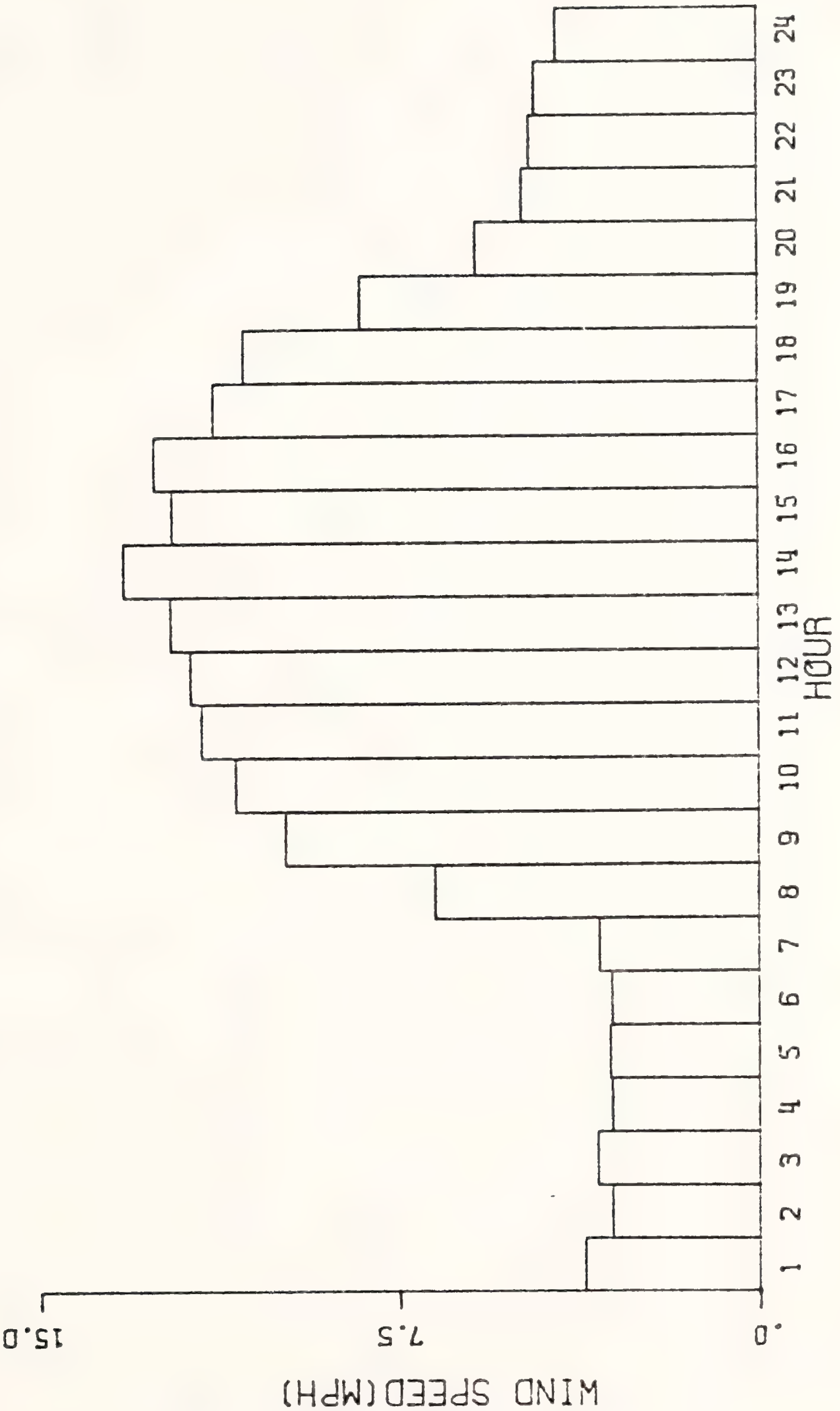
DIURNAL VARIATION OF CARBON MONOXIDE (UG/M**3 X 10**-1)
SITE - 23



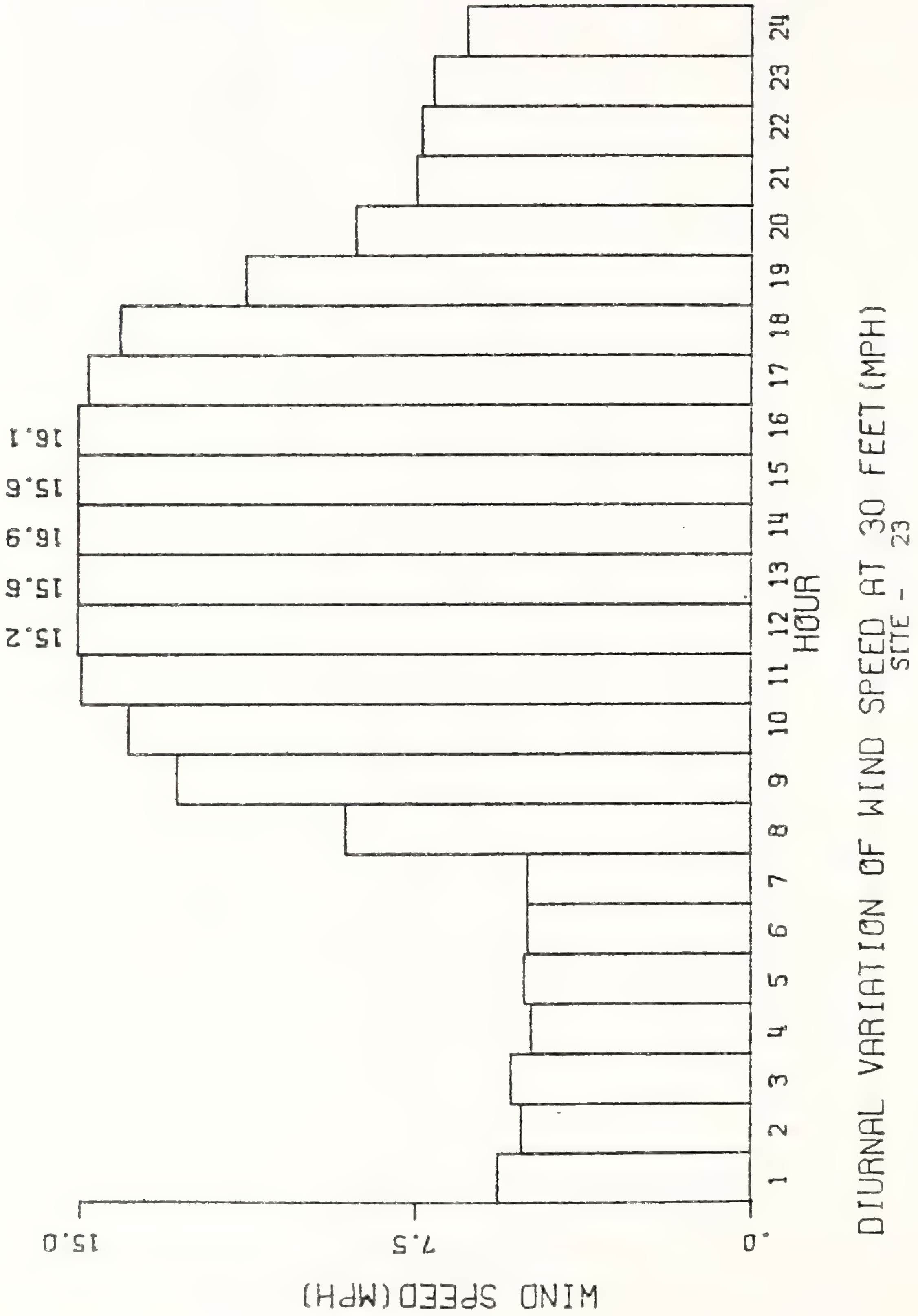
DIURNAL VARIATION OF OZONE (UG/M**3)
SITE - 23

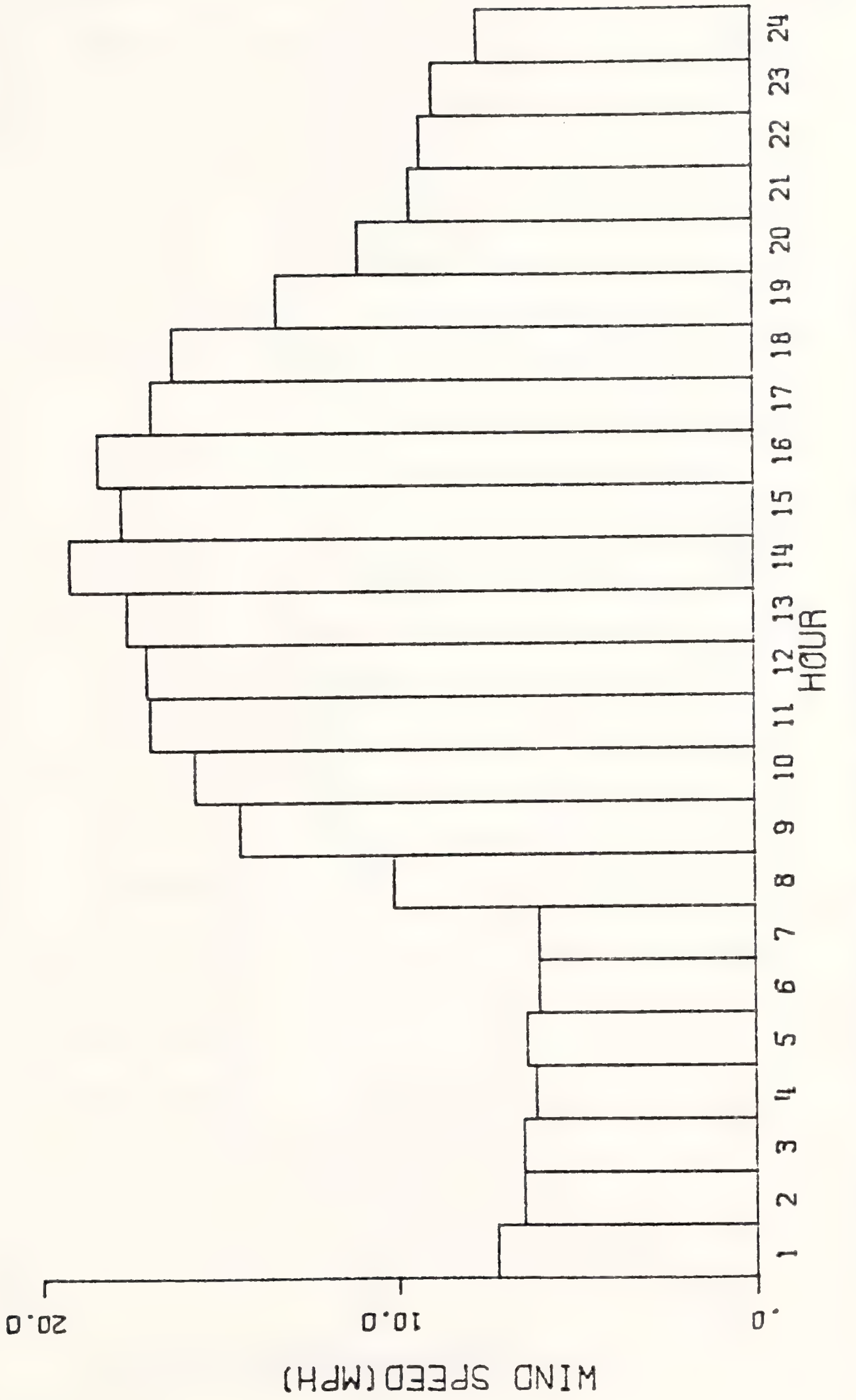


HOURLY TOTAL PRECIPITATION (HUNDREDTHS OF INCHES)
SITE - 23

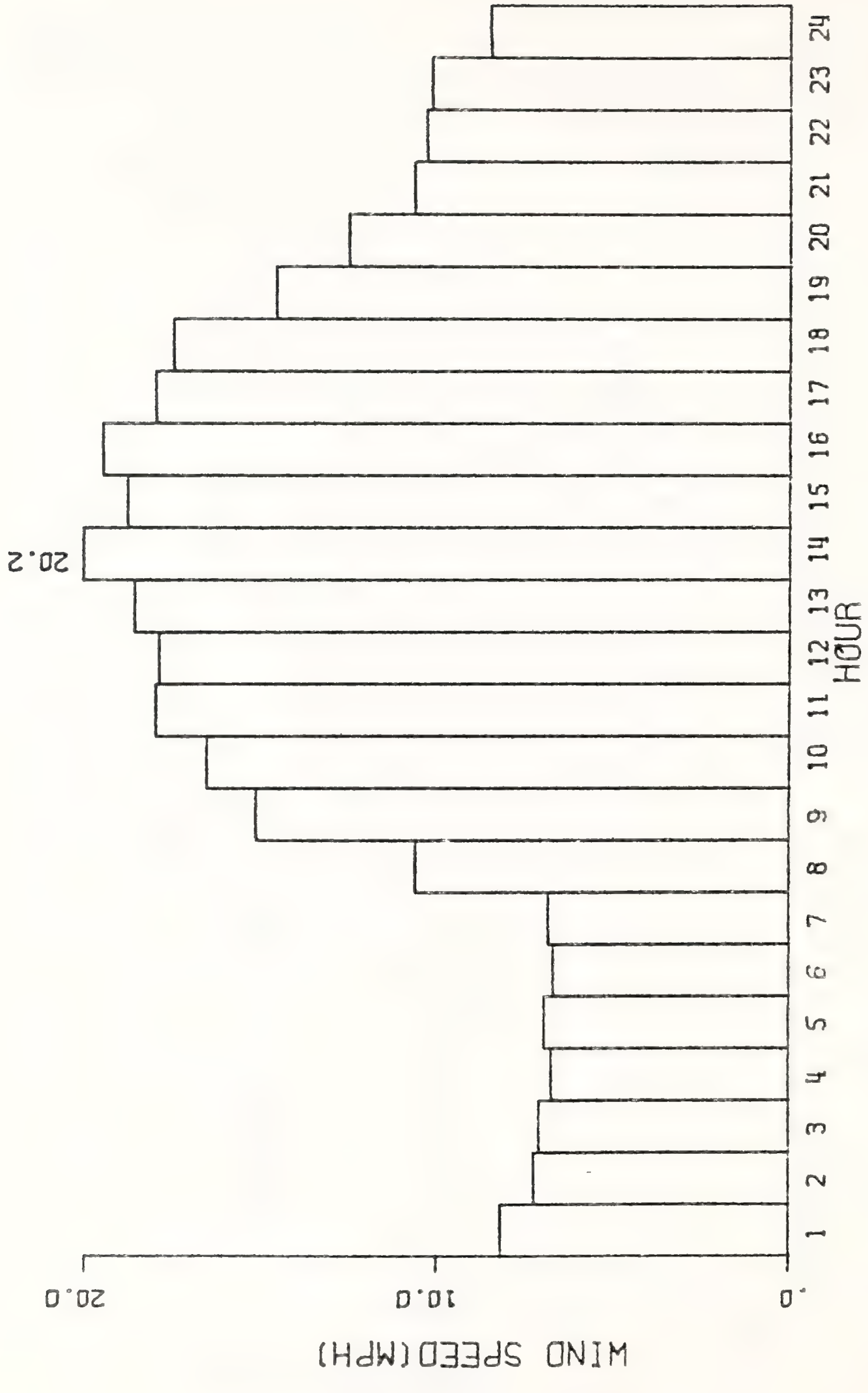


DIURNAL VARIATION OF WIND SPEED AT 8 FEET (MPH)
SITE - 23

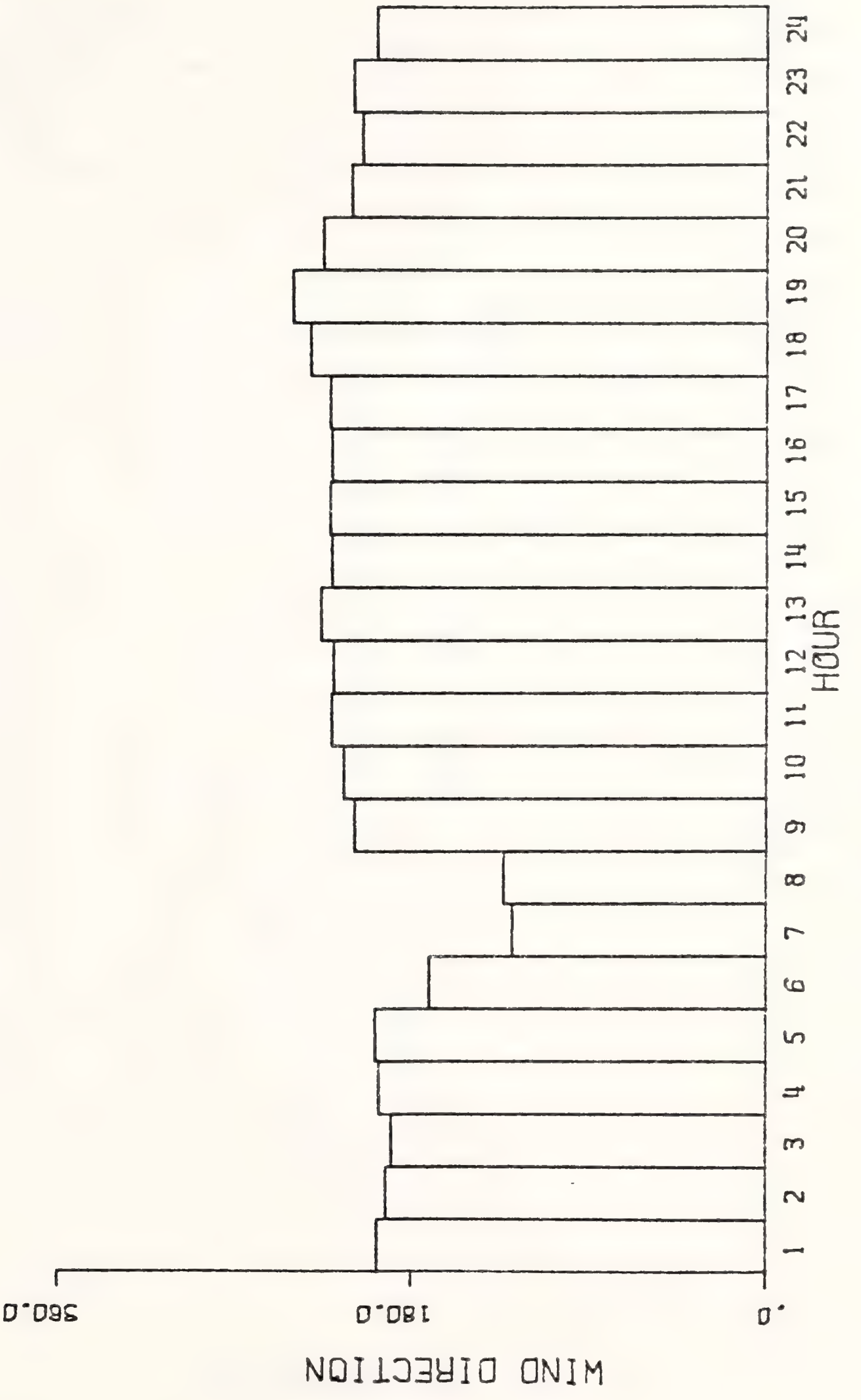

DIURNAL VARIATION OF WIND SPEED AT 30 FEET(MPH)
SITE - 23
HOUR
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
WIND SPEED(MPH)
0.
7.5
15.0
15.2
15.6
16.9
15.6
16.1



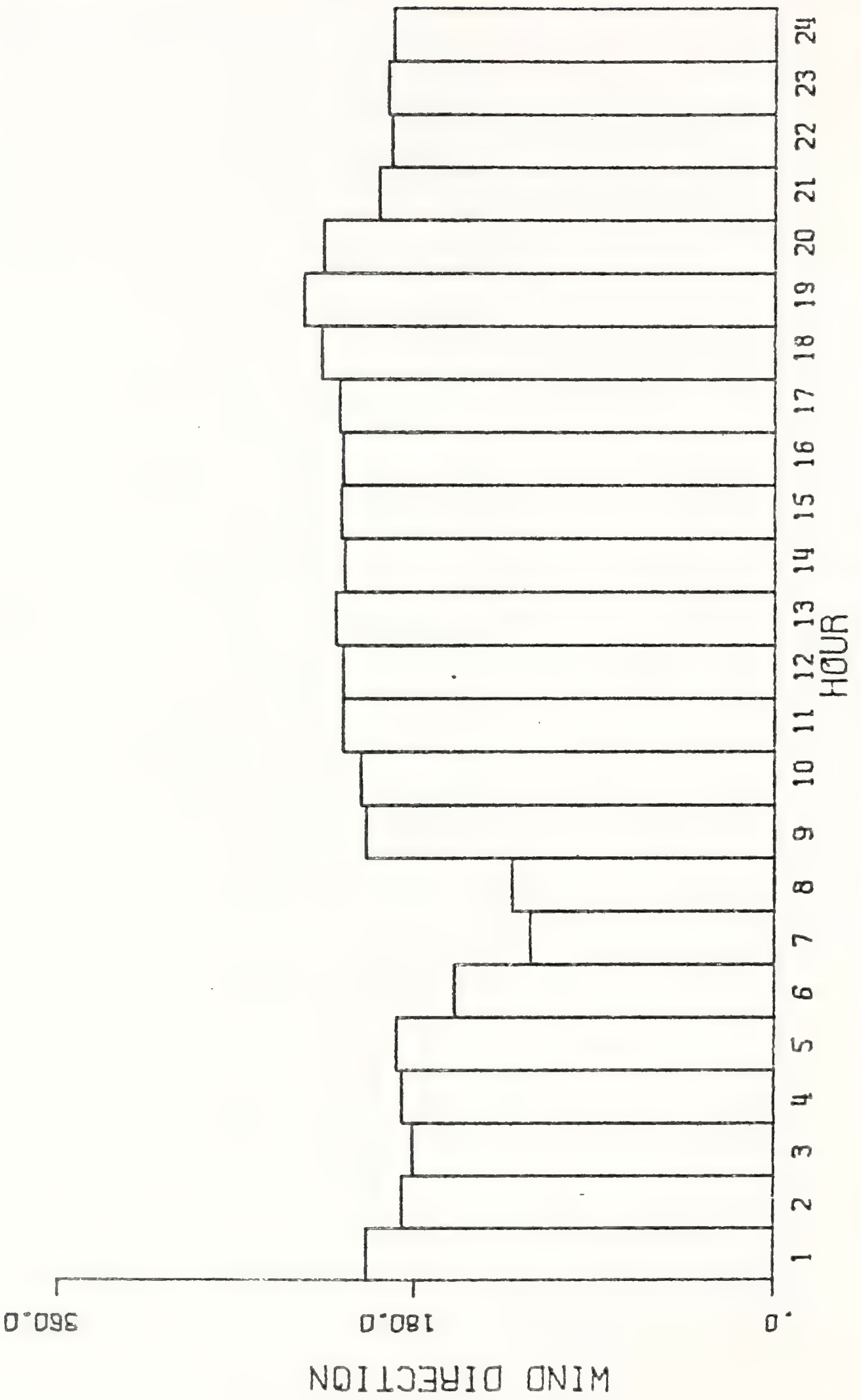
DIURNAL VARIATION OF WIND SPEED AT 100 FEET (MPH)
SITE - 23



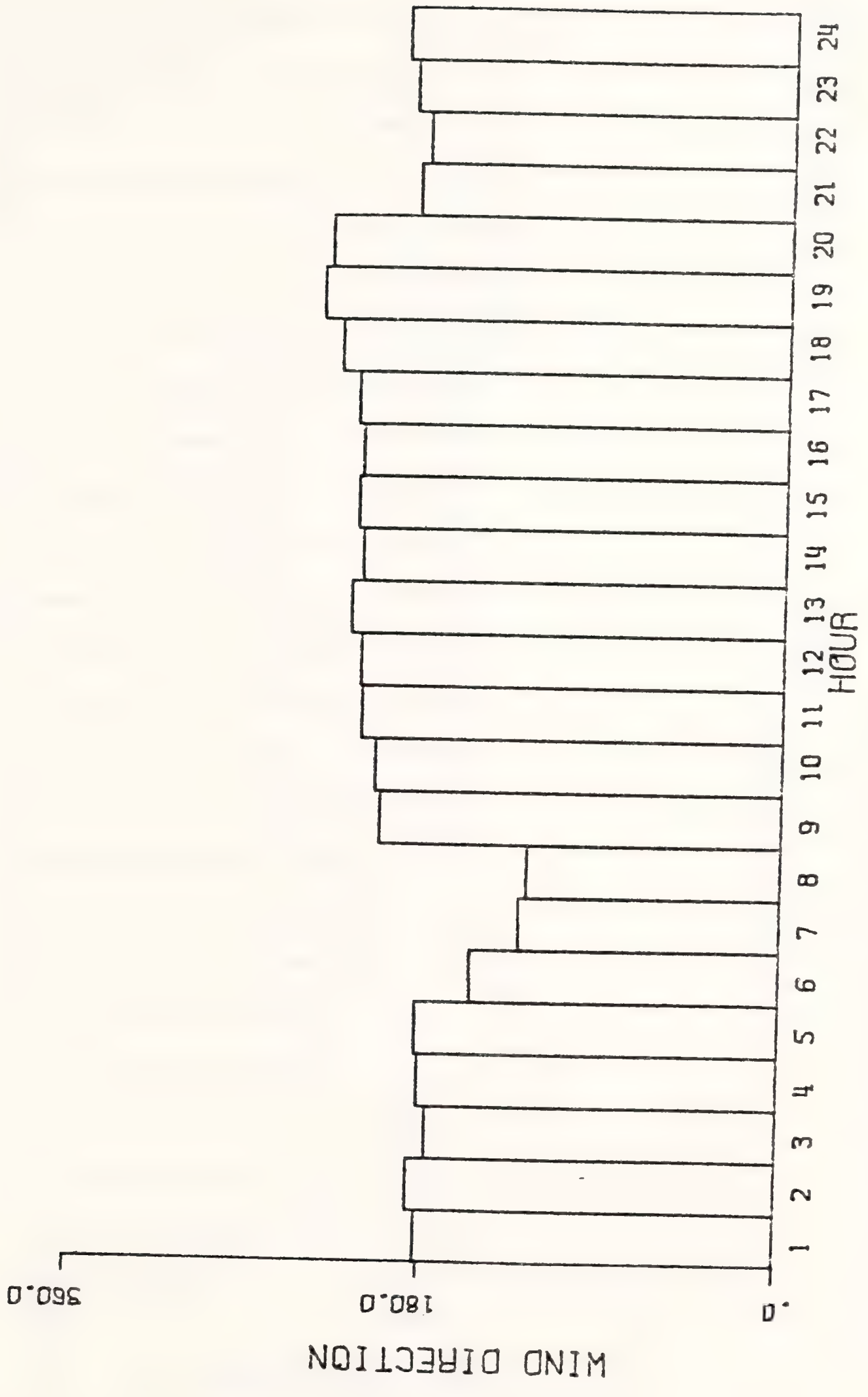
DIURNAL VARIATION OF WIND SPEED AT 200 FEET (MPH)
SITE - 23



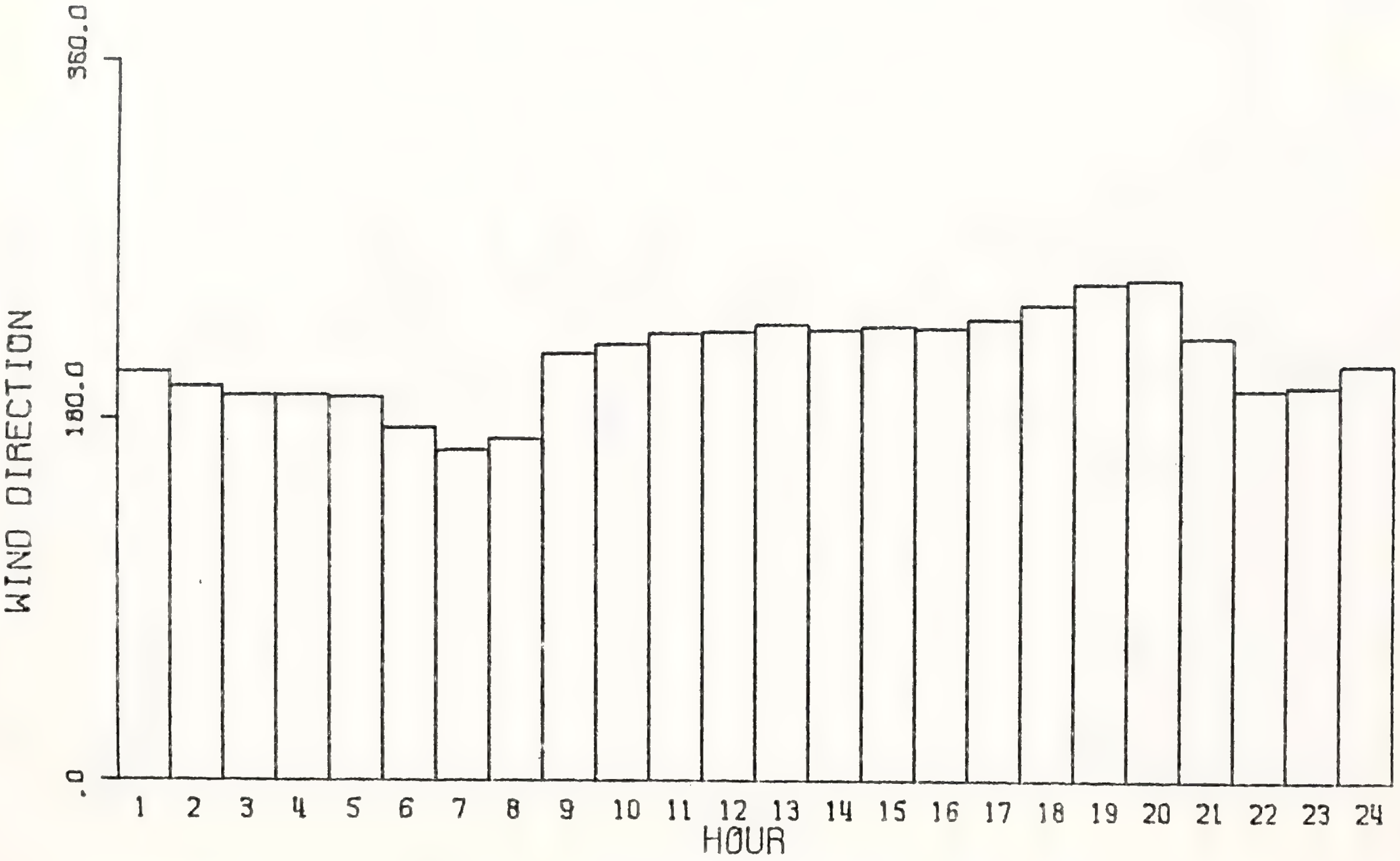
DIURNAL VARIATION OF WIND DIRECTION AT 8 FEET
SITE - 23



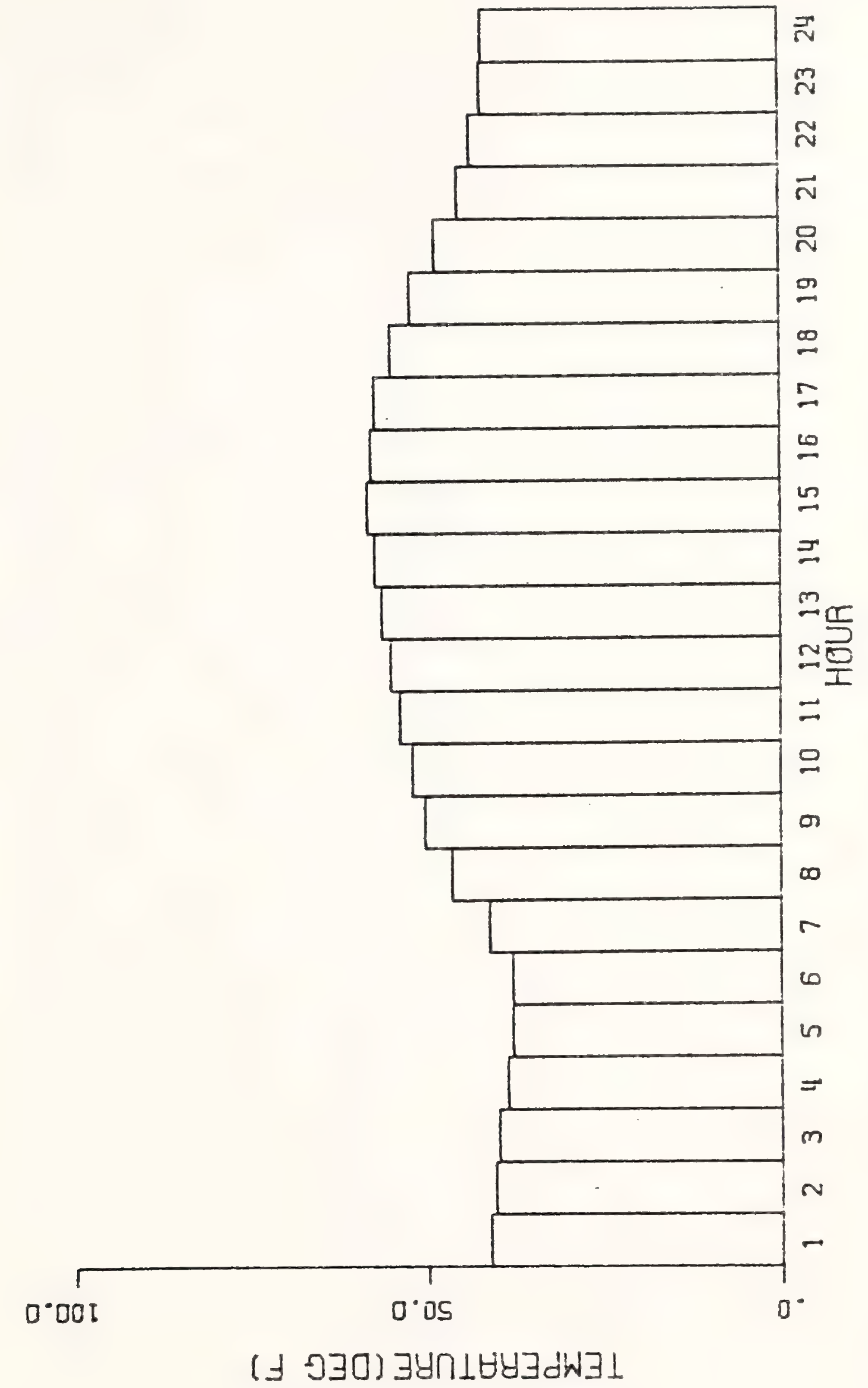
DIURNAL VARIATION OF WIND DIRECTION AT 30 FEET
SITE - 23



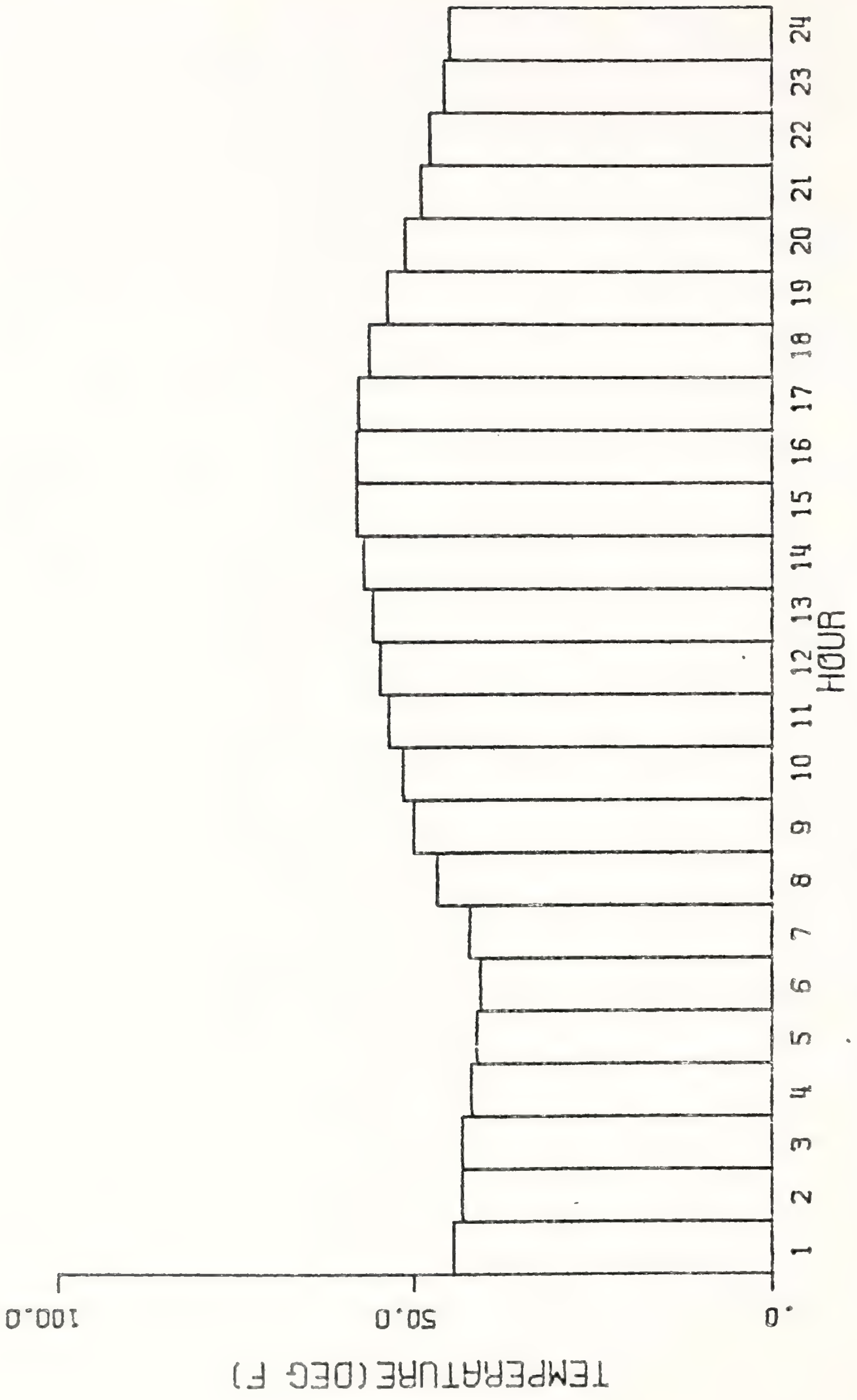
DIURNAL VARIATION OF WIND DIRECTION AT 100 FEET
SITE - 23



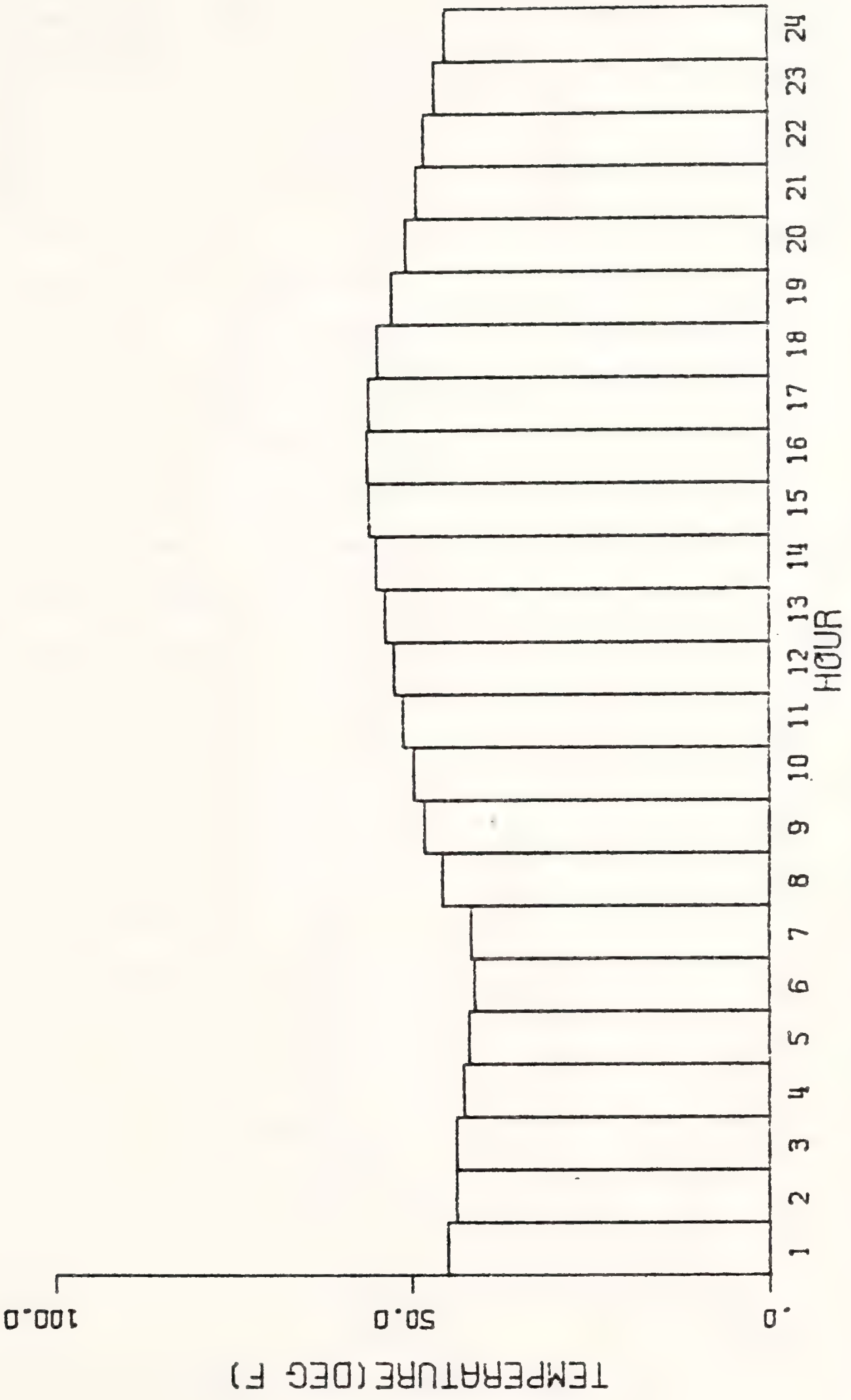
DIURNAL VARIATION OF WIND DIRECTION AT 200 FEET
SITE - 23



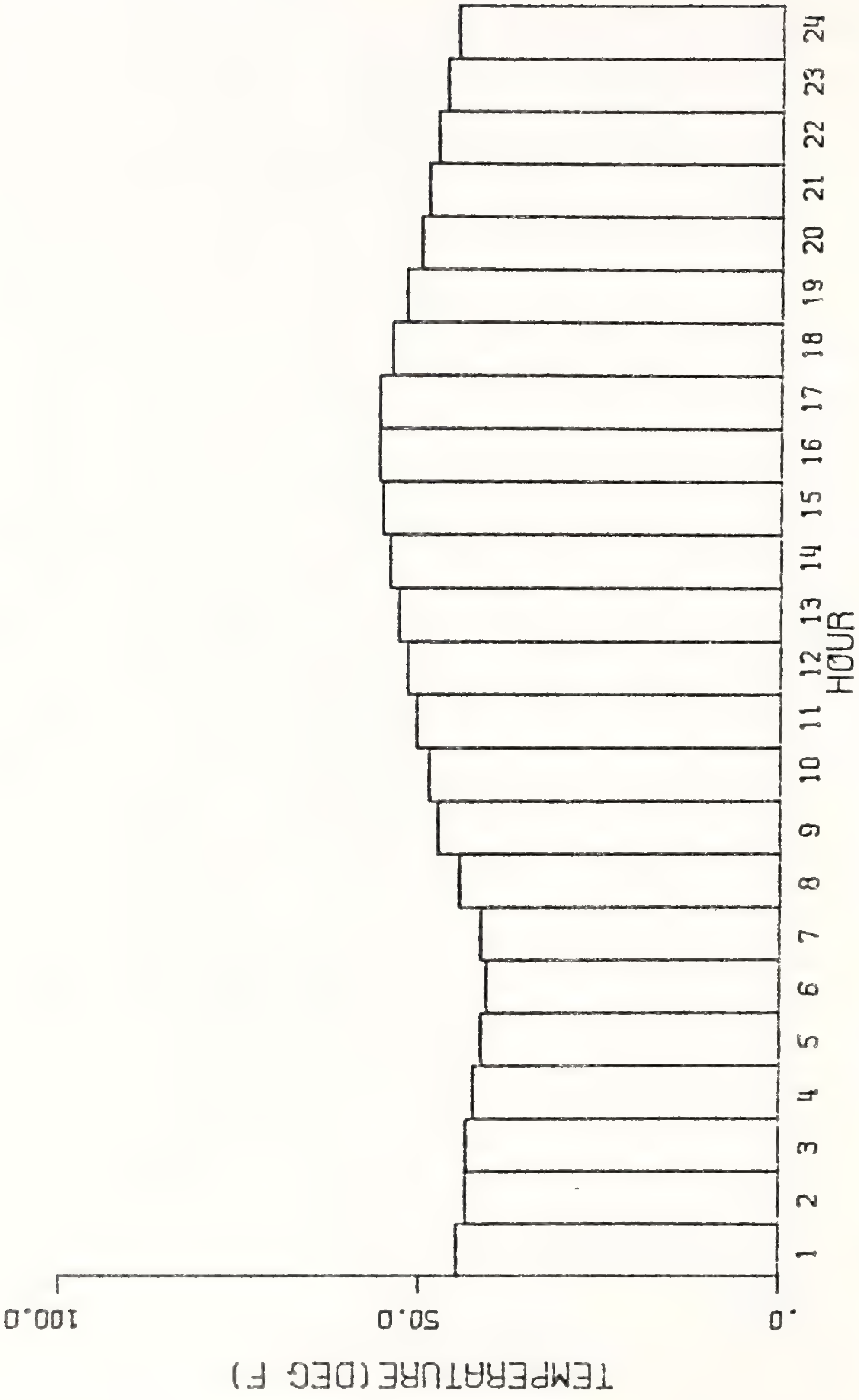
DIURNAL VARIATION OF TEMPERATURE AT 8 FEET (DEG F)
SITE - 23



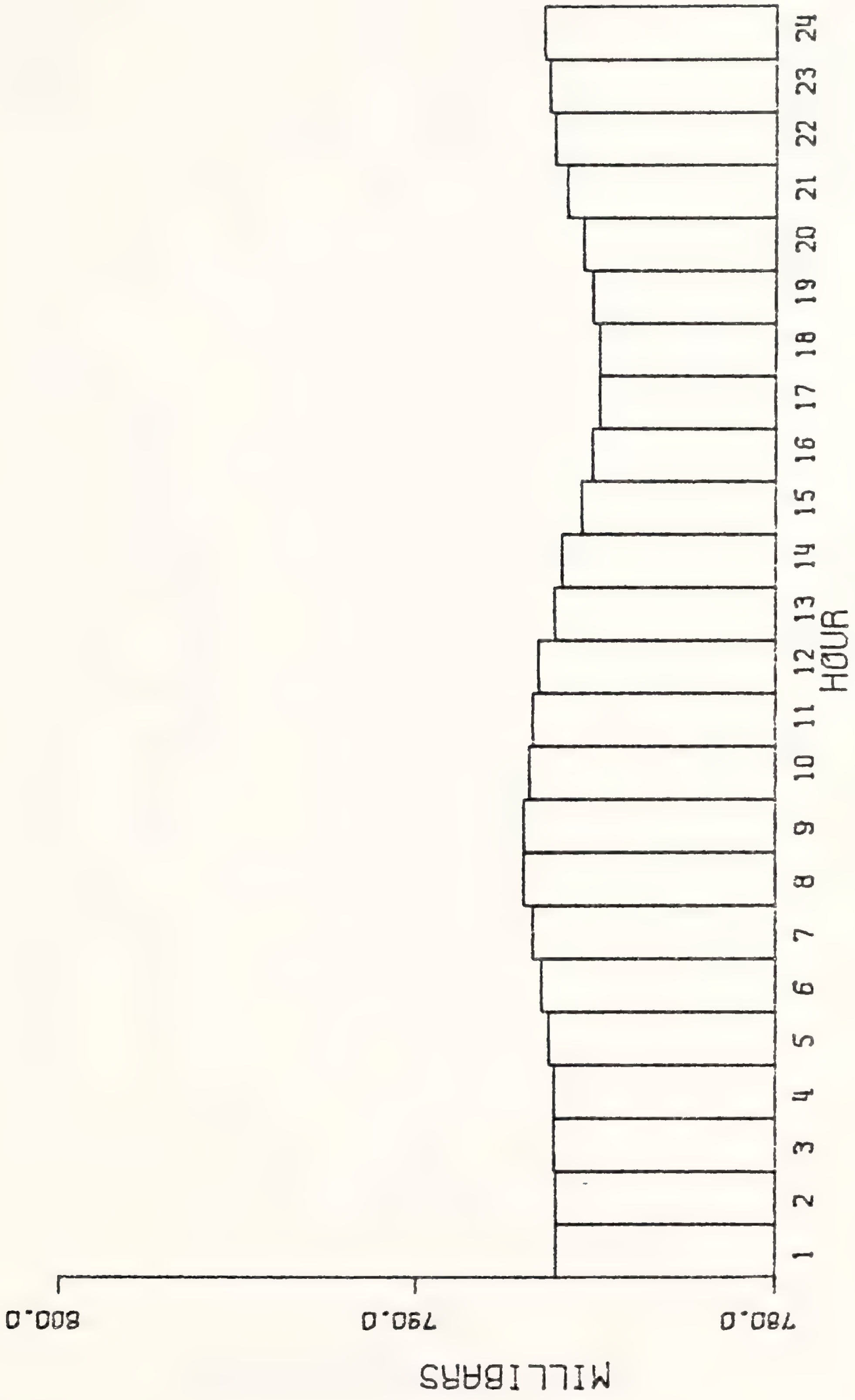
DIURNAL VARIATION OF TEMPERATURE AT 30 FEET (DEG F)
SITE - 23



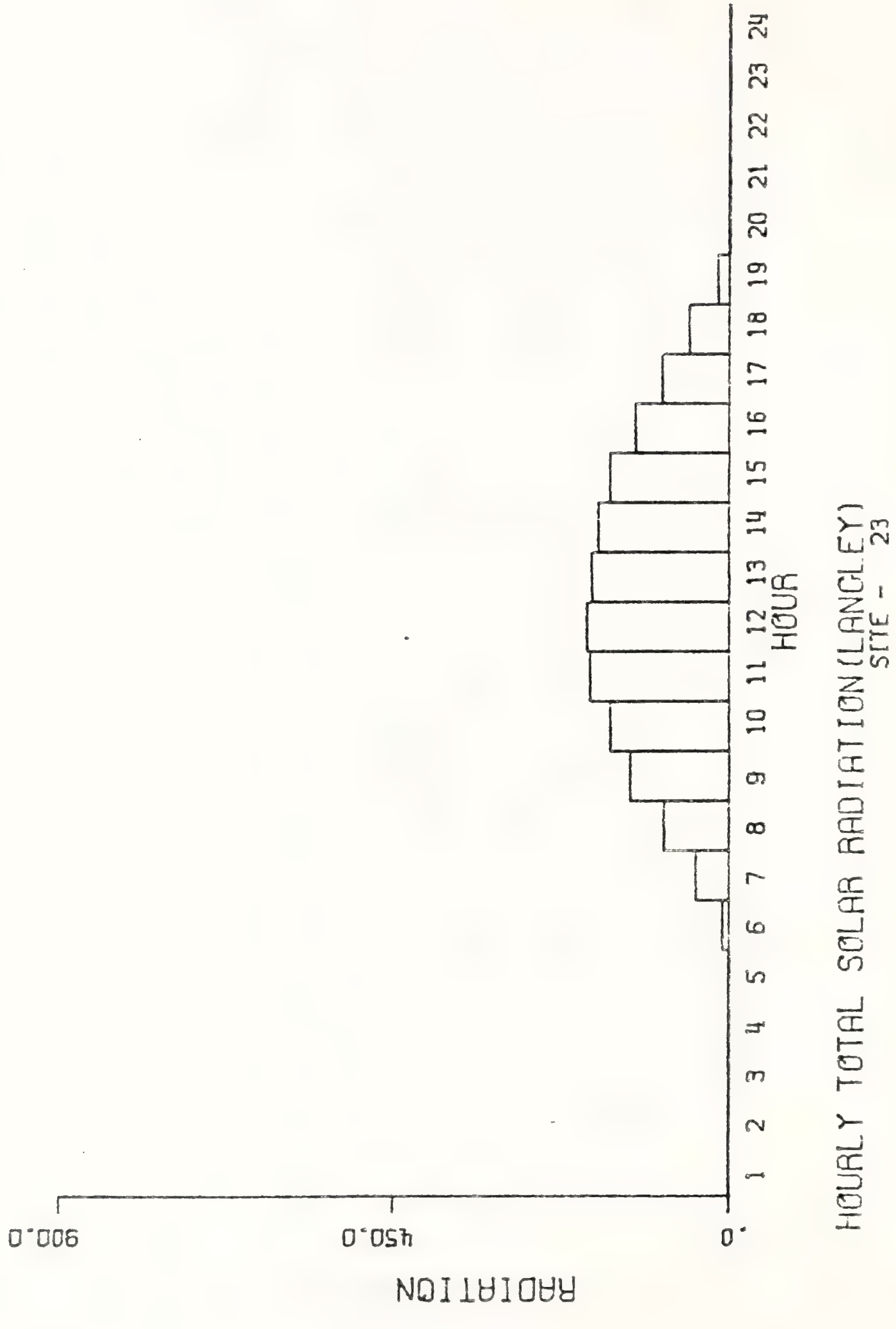
DIURNAL VARIATION OF TEMPERATURE AT 100 FEET(DEG F)
SITE - 23

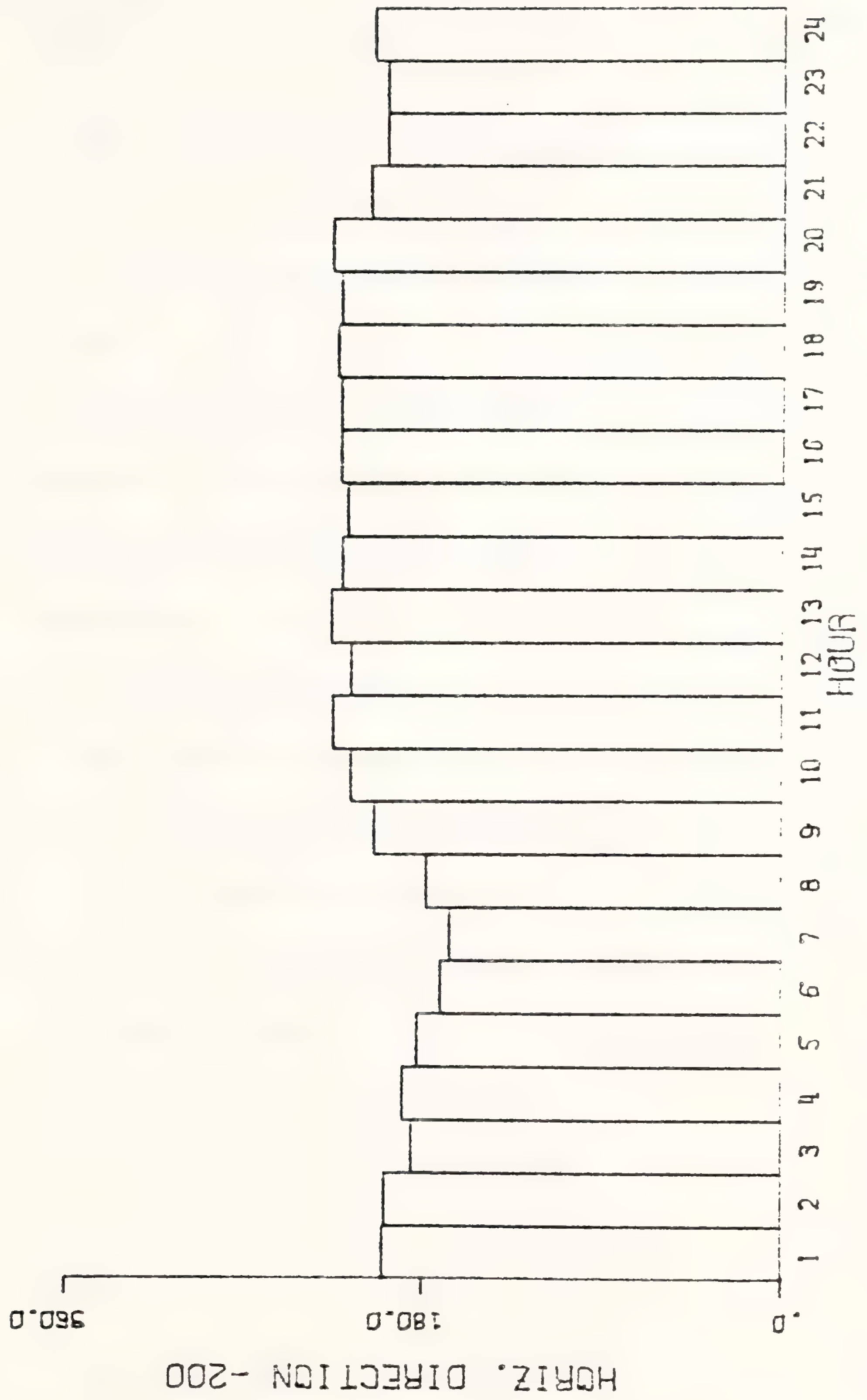


DIURNAL VARIATION OF TEMPERATURE AT 200 FEET(DEG F)
SITE - 23



DIURNAL VARIATION OF BAROMETRIC PRESSURE
SITE - 23


RADIATION
900.0
450.0
0.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
HOUR
HOURLY TOTAL SOLAR RADIATION (LANGLEY)
SITE - 23



DIURNAL VARIATION OF HORIZONTAL BI-VANE WIND DIRECTION AT 200 FEET
SITE - 23

CORPORATION

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              C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
         STABILITY CLASS DETERMINATION USING PYRANOMETER RECORDING
                     PERIOD( 5/ 1/77 TO  5/31/77)

                                            HOUR
       1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24

5/ 1                           D   D   D   D   D   D   D   D   D   D   D   D   D
5/ 2                       C   C   B   D   B   D   D   D   D   D   D   D   D   D
5/ 3                       D   D   D   D   D   D   D   D   D   D   D   D   D   D
5/ 4                       C   D   C   D   D   D   D   D   C   D   D   D   D   D
5/ 5                       C   C   B   D   D   D   D   D   D   D   D   D   D   D
5/ 6                       D   D   D   D   D   D   D   D   D   D   D   D   D   D
5/ 7                       D   D   D   D   D   D   D   D   D   D   D   D   D   D
5/ 8                       C   C   C   C   D   D   D   D   D   D   D   D   D   D
5/ 9                       D   D   C   D   D   D   D   D   D   D   D   D   D   D
5/10                       D   D   D   D   D   D   C   D   D   D   D   D   D   D
5/11                       C   C   C   D   D   D   D   D   D   D   D   D   D   D
5/12                       C   C   B   C   C   D   D   D   D   D   C   D   D   D
5/13                       C   C   B   B   B   B   B   C   C   C   C   D   D   D
5/14                           C   C   C   C   D   C   C   D   D   D   D   D   D
5/15                       D   D   C   C   D   D   C   C   D   C   D   D   C
5/16                       D   D   D   D   D   D   D   D   D   D   D   D   D   D
5/17                       C   C   C   D   D   D   D   D   D   D   D   D   D   D
5/18                       C   D   D   D   D   D   D   D   D   D   D   D   D   D
5/19                       C   C   B   C   B   B   C   B   C   C   D   D   D   D
5/20                       C   C   C   B   C   B   C   C   D   C   D   C   D   D
5/21                       C   C   B   C   B   B   B   B   B   B   B   C   C   D
5/22                       C   C   B   C   D   B   B   B   C   C   D   C   D   D
5/23                       D   D   C   D   D   D   D   D   D   D   D   D
5/24                               D   D   D   D   D   D   D   D   D   D   D   D
5/25                       C   C   C   D   D   D   D   D   D   D   D   D   D   D
5/26                       D   D   C   D   C   D   B   D   D   D   D   D   D   D
5/27                       C   C   D   D   C   D   C   D   D   C   C   C   C   C
5/28                       D   D   D   D   D   D   D   B               D   D   C
5/29                       C   C   B   C   D   D   D   D   D   D   D   D   D   D
5/30                       C   C   B   C   B   B   B   B   D   D   B   C   C   D
5/31                       C   C   C   B   B   B   B   B   B   B   C   C   C   D

* NON-ZERO PYRANOMETER READING BUT STABILITY CLASS UNCERTAIN SINCE NIGHTTIME NET RADIATION INDEX IS REQUIRED
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* NON-ZERO PYRANOMETER READING BUT STABILITY CLASS UNCERTAIN SINCE NIGHTTIME NET RADIATION INDEX IS REQUIRED

C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(5/ 1/77 TO 5/31/77)

	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5/ 1	F	F	E	F	E	E	E	D	D	D	D	D	D	D	D	D	D	C	B	B	E	E	F	E
5/ 2	E	E	F	E	F	E	E	A	C	C	D	C	D	D	D	D	D	D	B	F	F	F	E	D
5/ 3	D	E	D	E	E	E	E	B	D	C	D	D	D	D	D	D	D	D	C	C	E	D	D	D
5/ 4	D	D	E	E	F	F	E	B	C	C	D	D	C	B	C	D	D	D	C	C	B	D	E	E
5/ 5	D	D	E	E	E	F	D	A	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
5/ 6	C	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	E	E	D	E
5/ 7	E	E	E	E	E	E	B	D	D	D	D	D	D	D	D	D	D	D	B	D	F	F	F	F
5/ 8	F	F	F	F	F	F	F	A	B	D	D	D	D	D	D	D	D	D	D	E	E	E	E	F
5/ 9	F	F	D	E	E	E	D	B	D	C	C	D	D	D	D	D	D	D	B	D	E	E	D	D
5/10	D	B	C	D	B	B	B	D	B	D	C	C	C	D	D	D	D	D	C	E	F	F	F	F
5/11	F	F	F	F	F	E	E	B	D	D	D	D	D	D	D	D	D	C	B	F	F	E	F	F
5/12	F	F	E	F	E	E	F	A	B	B	D	D	D	D	C	B	D	D	D	D	D	B	B	E
5/13	F	E	E	F	F	F	D	A	A	A	B	A	A	B	B	B	B	D	B	A	E	D	E	E
5/14	D	E	E	D	B	A	A	A	A	A	B	B	B	D	C	D	D	D	C	D	D	D	D	D
5/15	D	B	C	A	B	D	B	B	C	D	D	B	B	D	B	D	B	A	B	C	B	D	D	D
5/16	E	D	E	F	F	F	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	B	B
5/17	B	A	A	A	A	A	A	B	D	D	D	D	D	D	D	D	D	C	B	B	B	B	B	A
5/18	B	A	D	E	D	E	B	D	D	D	D	D	D	D	D	D	D	D	C	B	C	E	F	F
5/19	F	F	F	F	F	F	D	A	B	B	B	B												
5/20																								
5/21																								
5/22																								
5/23																								
5/24																								
5/25																								
5/26																								
5/27																								
5/28																								
5/29																								
5/30																								
5/31																								

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                           C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                         STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                                    PERIOD( 5/ 1/77 TO  5/31/77)

                                      HOURLY WIND AND DIRECTION
                                          A STABILITY CLASS

                                              HOUR
        1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24


5/ 1

5/ 2                                3
                                    N
5/ 3

5/ 4

5/ 5                                4
                                  ESE
5/ 6

5/ 7

5/ 8                                2
                                  NNE
5/ 9

5/10

5/11

5/12                                3
                                  ESE
5/13                                3   3   3       2   3                           2
                                  ENE  NW   N     NNW WNW                          NE
5/14                        3   2   2   3   2
                          ESE ENE   E SSW   S
5/15                4                                                       3
                  WNW                                                       S
5/16
```

CORPORATION

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                         C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                      STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                                PERIOD( 5/ 1/77 TO  5/31/77)

                                 HOURLY WIND AND DIRECTION
                                    A STABILITY CLASS

5/17          3   3   3   1   2   2                                                                       4
             NW NNE NNW WNW  SE ENE                                                                      NW
5/18          3
             NW
5/19                                  3
                                      N
5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
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CORPORATION

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              C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
            STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                       PERIOD( 5/ 1/77 TO  5/31/77)

                        HOURLY WIND AND DIRECTION
                           B STABILITY CLASS

                                                HOUR
           1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24

5/ 1                                                                               8   4
                                                                                  SW NNE
5/ 2                                                                              10
                                                                                  SW
5/ 3                                  10
                                       S
5/ 4                                  10                          11                       8
                                      NW                           W                      NW
5/ 5

5/ 6

5/ 7                               9                                               9
                                  SE                                             WSW
5/ 8                                      10
                                           S
5/ 9                                   8                                          11
                                      SE                                           S
5/10           6           5   7  10      11
              SW          SW  SW SSW     SSW
5/11                                   4                                          10
                                       E                                         SSW
5/12                                       8  11                       8                          12  11
                                         SSW SSW                      SE                         ESE  SE
5/13                                               4          9   7   7   7        10
                                                  NE         NE   N WNW WNW       SSW
5/14                       5                       7   6   8
                           S                       S   S SSW
5/15          10           6       7   9               9   8       9       7       8      10
              SW          SW     SSW WSW             WSW  SW       S       S     SSW     SSW
5/16                                                                                          11   4
                                                                                             WNW NNW
```

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             C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
            STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                    PERIOD( 5/ 1/77 TO  5/31/77)

                      HOURLY WIND AND DIRECTION
                         B STABILITY CLASS

5/17    4                           8                                           8   9   7   5   6
        N                         WSW                                           W NNW WNW   W WNW
5/18    6                       6                                                  11
       NW                     ENE                                                  NW
5/19                                    9  10   8   6
                                       SW SSW SSW SSW
5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
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                          C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                      STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                                PERIOD( 5/ 1/77 TO  5/31/77)

                                  HOURLY WIND AND DIRECTION
                                     C STABILITY CLASS

                                              HOUR
         1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24


5/ 1                                                                        12
                                                                           SSW

5/ 2                                    12  11      12
                                       SSW SSW      SW

5/ 3                                        13                                  12   7
                                           SSW                                 SSE SSE

5/ 4                                    12  11          11      12              13  14
                                       WNW  NW         WNW     WSW             WNW  NW

5/ 5

5/ 6      11                                                                    14
         SSW                                                                   SSW

5/ 7

5/ 8

5/ 9                                        13  12
                                             S   S

5/10            6                               12  12  13                      13
               SW                               SW  SW  SW                      SW

5/11                                                                        12
                                                                           SSW

5/12                                                            12
                                                                SE

5/13

5/14                                                            12              13
                                                               WSW              SW

5/15            6                       12                                          9
               SW                      WSW                                         SE

5/16                                                                                        12
                                                                                           WNW
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                         C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                       STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                                PERIOD( 5/ 1/77 TO  5/31/77)

                                  HOURLY WIND AND DIRECTION
                                     C STABILITY CLASS

5/17                                                            11
                                                                SW
5/18                                                                12       4
                                                                     W      NW
5/19

5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
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C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD(5/ 1/77 TO 5/31/77)

HOURLY WIND AND DIRECTION
D STABILITY CLASS

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5/ 1								18 SSW	18 SSW	15 SSW	19 SSW	17 SSW	18 SSW	17 SSW	16 SSW	17 SSW	16 SSW							
5/ 2											14 SSW		12 S	16 SSW	14 SW	15 SSW	14 SSW	14 SW						14 S
5/ 3	15 S		14 S						16 SSW		18 SW	19 SSW	18 SSW	19 S	22 S	17 SSE	22 S	15 SSE				16 S	16 S	15 SSW
5/ 4	16 S	11 S									14 NW	14 WNW				17 SW	19 SW	18 SW				5 NW		
5/ 5	3 WSW	3 W					1 ESE		17 SSW	17 SSW	17 SSW	21 SSW	24 SSW	23 SSW	22 SSW	22 SSW	22 SSW	19 S	19 SSW	17 SSW	20 SSW	12 S	21 SSW	15 SSW
5/ 6			15 SSE	18 SSE	14 SSE	18 S	18 S	23 S	24 S	22 SSW	22 SSW	23 SSW	20 SSW	22 SSW	19 SSW	20 SSW	19 SSW	16 SSW		9 SSW			14 SSE	
5/ 7								14 SSE	16 S	18 S	16 SSE	14 S	16 S	20 S	21 S	22 S	19 SSW	18 SW		6 SW				
5/ 8										15 S	16 S	19 S	20 S	17 S	18 S	18 SSW	18 SSW	17 SSW	14 SSW					
5/ 9			14 SSE				9 SSE		15 S			14 SSE	16 SSE	15 S	15 S	15 S	15 SSE	15 S		6 SSW			14 S	16 SSW
5/10	15 SSW			3 SW				16 SW		15 S				19 SW	22 SW	20 SW	18 SW	14 SW						
5/11									15 SSE	14 S	16 S	18 S	17 SSW	15 SSW	14 SSW	16 SSW	15 SSW							
5/12											17 S	21 S	15 S	14 SSE			14 SSE	20 S	22 S	15 SE	17 SE			
5/13							3 ESE											24 SSW				3 SSW		
5/14	4 SE			7 SW										15 SW		15 SW	17 SW	16 SW		16 SSW	20 SW	18 SW	17 SW	14 SW
5/15	11 SW					8 SW				14 W	14 W			15 SW		13 WSW						11 SSE	13 SSE	8 SSE
5/16		2 SE					8 SSE	20 S	20 S	21 S	22 S	28 S	30 S	33 S	29 SSW	29 S	26 SSW	25 SSW	25 SSW	27 SSW	15 SW			

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                     C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                  STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                             PERIOD( 5/ 1/77 TO  5/31/77)

                                HOURLY WIND AND DIRECTION
                                   D STABILITY CLASS

5/17                                  24  24  23  27  22  24  22  21  15
                                     SSW   S SSW SSW SSW SSW SSW SSW SSW
5/18           3       1          17  19  21  22  20  17  19  17  16  16  15
              NW      NE         SSW   S SSW SSW SSW SSW SSW SSW SSW  SW  SW
5/19                           1
                               W
5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
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                                  C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                                STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                                              PERIOD( 5/ 1/77 TO  5/31/77)

                                                HOURLY WIND AND DIRECTION
                                                     E STABILITY CLASS

                                                          HOUR
          1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24

5/ 1               10         8    2    7                                                                     2    3         3
                  SSW       SSE   SE    S                                                                     E  ESE        SW
5/ 2      0    0         0         1    1                                                                              11
        ENE   NE        SE       WNW  ENE                                                                               S
5/ 3          11        13   12   10    9                                                                    10
               S         S    S    S    S                                                                   SSE
5/ 4               10    6              8                                                                               2    1
                  SSW   SW             NW                                                                             WNW    W
5/ 5                2    2    2
                    W  WSW  WSW
5/ 6          12                                                                                              9   11        12
             SSE                                                                                            SSE  SSE       SSE
5/ 7     11   11   10   11   12   10
        SSE  SSE  SSE  SSE  SSE   SE
5/ 8                                                                                                    10   12   11   10
                                                                                                       SSW  SSW  SSW    S
5/ 9                    12   10   11                                                                         10   10
                       SSE   SE  SSE                                                                        SSW    S
5/10                                                                                                     7
                                                                                                       SSW
5/11                                     4    3                                                                   9
                                  SE   SE                                                                         S
5/12               11         1    2                                                                                         9
                  SSE        SW  SSE                                                                                        SE
5/13          10    4                                                                                         5         6    9
             SSE   SE                                                                                       SSE         S  SSE
5/14           7    3
             SSW   SW
5/15
5/16      8         4
        SSE         S
```

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                     C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                 STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                              PERIOD( 5/ 1/77 TO  5/31/77)

                                HOURLY WIND AND DIRECTION
                                   E STABILITY CLASS

5/17

5/18                 2       3                                                                  2
                    SW      ENE                                                               SSE
5/19

5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
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C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
PERIOD( 5/ 1/77 TO  5/31/77)

HOURLY WIND AND DIRECTION
F STABILITY CLASS

                                              HOUR
         1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24

5/ 1     8   8       1                                                                           1
         S   S     WSW                                                                         WNW
5/ 2             0       0                                                       7   9   9
                NW      NE                                                      SW SSW   S
5/ 3

5/ 4                     6   4
                       WSW WSW
5/ 5                         2
                            SW
5/ 6

5/ 7                                                                                 1   3   4   3
                                                                                     S SSE SSW   W
5/ 8     2   3   6   4   4   1   0                                                               3
       WSW WSW  SE SSE   S   E ENE                                                             SSE
5/ 9     6   9
         S   S
5/10                                                                                 6   7   7   8
                                                                                     S SSW SSW SSW
5/11     2   1   1   1   2                                                       6   9       6   1
       WSW   N SSE SSE  SE                                                       S   S       S NNE
5/12     2   8       4           2
         E   S     SSW         SSE
5/13     9           5   7   3
        SE         SSW SSE  SE
5/14

5/15

5/16                 8   8   7
                   SSE  SE  SE
```

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                          C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                        STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 1)
                                  PERIOD( 5/ 1/77 TO  5/31/77)

                                    HOURLY WIND AND DIRECTION
                                        F STABILITY CLASS

5/17

5/18                                                                                            2    2
                                                                                               SSE   S
5/19     1   1   1   2   2   3
         W  WNW NNE  SE SSW SSW
5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
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                  C*B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
              STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                           PERIOD( 5/ 1/77 TO  5/31/77)

                                          HOUR
          1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

5/ 1      F  F  E  E  E  E  E  D  D  D  D  D  D  D  D  D  D  C  B  D  E  D  E  E
5/ 2      D  E  E  E  F  E  E  A  C  C  D  C  D  D  D  D  D  D  C  E  F  E  E  D
5/ 3      D  E  D  E  E  E  E  C  D  C  D  D  D  D  D  D  D  D  C  B  E  D  D  D
5/ 4      D  D  D  E  E  E  E  B  C  C  D  D  C  B  C  D  D  D  C  C  B  C  E  D
5/ 5      D  C  D  E  D  E  C  A  D  D  D  D  D  D  D  D  D  D  D  D  D  D  D  D
5/ 6      D  E  D  D  C  D  D  D  D  D  D  D  D  D  D  D  D  D  C  D  E  E  D  E
5/ 7      E  E  E  E  E  E  B  D  D  D  D  D  D  D  D  D  D  D  B  D  E  E  F  F
5/ 8      F  F  F  F  F  E  F  A  B  D  D  D  D  D  D  D  D  D  D  E  E  E  E  F
5/ 9      F  F  D  E  E  E  D  B  D  C  C  D  D  D  D  D  D  D  B  D  E  E  D  D
5/10      D  B  B  C  B  B  B  D  B  D  C  C  C  D  D  D  D  D  C  D  E  F  F  F
5/11      F  F  F  F  E  E  E  B  D  D  D  D  D  D  D  D  D  C  B  E  F  E  F  F
5/12      F  F  E  F  E  E  F  D  B  B  D  D  D  D  C  B  D  D  D  D  D  C  C  D
5/13      E  E  E  E  F  E  C  A  A  A  B  A  A  B  B  B  B  D  B  A  D  D  D  D
5/14      D  E  E  D  B  A  A  A  A  A  B  B  B  D  C  D  D  D  C  D  D  D  D  C
5/15      B  B  B  A  B  C  B  B  C  D  D  B  B  D  B  C  B  A  B  C  B  D  D  D
5/16      E  D  E  E  E  E  D  D  D  D  D  D  D  D  D  D  D  D  D  D  D  C  B  B
5/17      B  A  A  A  A  A  A  B  D  D  D  D  D  D  D  D  D  C  B  B  B  B  B  A
5/18      B  A  D  D  D  E  B  D  D  D  D  D  D  D  D  D  D  D  C  B  A  D  E  E
5/19      E  E  E  E  F  F  D  A  B  B  B  B
5/20
5/21
5/22
5/23
5/24
5/25
5/26
5/27
5/28
5/29
5/30
5/31
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                            C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                          STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                                     PERIOD( 5/ 1/77 TO  5/31/77)

                                       HOURLY WIND AND DIRECTION
                                           A STABILITY CLASS

                                               HOUR
         1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24


5/ 1

5/ 2                                 3
                                    NW
5/ 3

5/ 4

5/ 5                                 4
                                    SE
5/ 6

5/ 7

5/ 8                                 2
                                   WSW
5/ 9

5/10

5/11

5/12

5/13                                 3   2   3       2   4                           2
                                   ENE WNW   N     NNE WSW                          NE
5/14                         4   2   2   3   2
                            SE ESE ESE SSW   S
5/15                 4                                                       4
                   WNW                                                     SSW
5/16
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                 C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
             STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                       PERIOD( 5/ 1/77 TO  5/31/77)

                          HOURLY WIND AND DIRECTION
                             A STABILITY CLASS

5/17        3    3    2    0    2    2                                                                                    5
          NNW   NE    N   NW   SE  ENE                                                                                   NW
5/18        4                                                                                          5
          NNW                                                                                         NW
5/19                                       3
                                         NNE
5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
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CORPORATION

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                C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
              STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                      PERIOD( 5/ 1/77 TO  5/31/77)

                        HOURLY WIND AND DIRECTION
                            B STABILITY CLASS

                                                          HOUR
            1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24

5/ 1                                                                                                  9
                                                                                                     SW
5/ 2

5/ 3                                                                                                       7
                                                                                                         SSE
5/ 4                                          11                            11                                  9
                                              NW                           WNW                                 NW
5/ 5

5/ 6

5/ 7                                     11                                                         10
                                        SSE                                                        WSW
5/ 8                                                   11
                                                        S
5/ 9                                           8                                                    12
                                             SSE                                                   SSW
5/10             7    7         6    9   10        12
                SW  WSW        SW   SW  SSW        SW
5/11                                           4                                                    11
                                             ESE                                                    SW
5/12                                                8   11                            9
                                                  SSW   SW                          SSE
5/13                                                          3              9    8    7    7        12
                                                             NE             NE    N  WNW  WNW        SW
5/14                            6                             7    6    8
                              SSW                             S    S  SSW
5/15       14   12    7         7         9    9                  10    9        10         8        10        13
           SW  WSW  WSW       WSW        SW  WSW                   W  WSW       SSW       SSW       SSW       SSW
5/16                                                                                                                     11    4
                                                                                                                        WNW  NNW
                            C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                          STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                                     PERIOD( 5/ 1/77 TO  5/31/77)

                                       HOURLY WIND AND DIRECTION
                                           B STABILITY CLASS

5/17    5                           9                                            8   9   8   5   7
        N                         WSW                                          WNW NNW WNW WNW WNW
5/18    6                       5                                                   12
       NW                     ENE                                                   NW
5/19                                    9  10   8   6
                                       SW  SW  SW  SW

5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
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# C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
# STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
PERIOD(5/ 1/77 TO 5/31/77)

HOURLY WIND AND DIRECTION
C STABILITY CLASS

	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5/ 1																		13 SSW						
5/ 2									13 SW	11 SW		13 SW							11 SW					
5/ 3								11 S		14 SW									13 S					
5/ 4									12 NW	12 NW			11 WNW		13 W				14 WNW	15 NW		6 NW		
5/ 5		3 WNW					1 SSW																	
5/ 6					16 S														15 SSW					
5/ 7																								
5/ 8																								
5/ 9										13 SSW	13 S													
5/10				4 WSW							13 SW	12 SW	14 SW						14 SW					
5/11																		13 SW						
5/12															13 SSE							13 SE	14 SSE	
5/13							3 ESE																	
5/14															13 WSW				15 WSW					17 SW
5/15						9 SW			13 WSW							15 WSW				11 SSE				
5/16																						13 WNW		

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                 C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
              STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                        PERIOD( 5/ 1/77 TO  5/31/77)

                           HOURLY WIND AND DIRECTION
                              C STABILITY CLASS

                                                                      12
5/17                                                                 WSW
                                                                          13
5/18                                                                     WNW

5/19

5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
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                    C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                 STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                           PERIOD( 5/ 1/77 TO  5/31/77)

                            HOURLY WIND AND DIRECTION
                               D STABILITY CLASS

                                                   HOUR
          1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24

5/ 1                                         21   20   16   21   19   19   18   18   19   17              4         4
                                            SSW  SSW  SSW   SW  SSW  SSW  SSW   SW  SSW   SW            NNE       ESE
5/ 2      0                                                 16        13   17   15   15   15   15                           14
        WSW                                                 SW       SSW   SW   SW   SW   SW   SW                            S
5/ 3     15        16                             17        19   20   20   20   23   17   24   16                  17   19   17
          S         S                            SSW        SW   SW  SSW    S    S    S    S    S                 SSW    S  SSW
5/ 4     18   12   12                                       15   14                  18   20   20                            1
        SSW    S   SW                                       NW  WNW                  SW   SW  WSW                            N
5/ 5      2         2         1                   18   18   19   22   26   25   23   24   23   21   21   19   22   14   23   17
        WSW       WNW       WNW                  SSW  SSW  SSW  SSW   SW  SSW  SSW  SSW  SSW  SSW  SSW  SSW   SW  SSW   SW   SW
5/ 6     14        17   21        20   20   24   25   24   24   24   22   24   21   22   21   18        10             14
        SSW         S    S         S    S    S  SSW  SSW  SSW  SSW  SSW  SSW  SSW  SSW  SSW  SSW       SSW              S
5/ 7                                         15   16   19   17   15   17   21   22   23   21   19         8
                                              S    S    S  SSE    S  SSW  SSW    S  SSW  SSW   SW       WSW
5/ 8                                                   15   17   20   21   18   18   19   20   17   16
                                                      SSW  SSW    S    S    S  SSW  SSW  SSW   SW   SW
5/ 9               16                  10        15             15   17   16   16   16   16   16         8             16   18
                    S                 SSE         S              S    S    S  SSW  SSW    S    S       SSW              S   SW
5/10     17                                  17        16                  20   23   22   19   14         9
        SSW                                  SW       SSW                 WSW   SW   SW   SW   SW        SW
5/11                                              15   15   16   19   17   16   16   18   16
                                                 SSE  SSW  SSW    S  SSW  SSW  SSW   SW   SW
5/12                                          3             18   22   16   15             14   22   24   18   20             11
                                            SSE            SSW    S    S    S            SSE  SSW    S   SE  SSE             SE
5/13                                                                                           27              6    5    6   11
                                                                                              SSW              S  SSW    S  SSE
5/14      5              8                                                 16        16   19   18        19   22   21   20
        SSE            WSW                                                 SW        SW   SW   SW        SW   SW   SW   SW
5/15                                                   15   14             17                                     14   16   11
                                                        W  WNW             SW                                    SSE  SSE  SSE
5/16           4                       10   22   22   22   24   30   33   36   32   32   29   28   28   30   17
              SE                        S    S    S    S    S    S  SSW  SSW  SSW    S  SSW  SSW  SSW  SSW  WSW
```

```
                          C=B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                        STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                                 PERIOD( 5/ 1/77 TO  5/31/77)

                                   HOURLY WIND AND DIRECTION
                                      D STABILITY CLASS

5/17                                  26  26  25  28  24  26  24  22  16
                                     SSW SSW SSW SSW SSW SSW SSW  SW SSW
5/18            4   2   1          18  21  23  23  22  18  20  18  17  17  15               2
              NNW NNW ENE         SSW SSW SSW SSW  SW  SW  SW  SW  SW WSW WSW               S
5/19                            2
                              WSW
5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
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CORPORATION

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                            C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                          STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                                     PERIOD( 5/ 1/77 TO  5/31/77)

                                       HOURLY WIND AND DIRECTION
                                           E STABILITY CLASS

                                               HOUR
        1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24


5/ 1           13   2   9   5  10                                                       3       1   2
              SSW SSW SSE   S SSW                                                     ENE     ESE  SW
5/ 2          0   0   0       0   1                                                   7      10  13
              N NNW ESE     SSE   E                                                  SW     SSW SSW
5/ 3         12      15  14  10   9                                                      12
              S       S   S SSE   S                                                     SSE
5/ 4                  7   7   6  11                                                               4
                    WSW WSW WSW  NW                                                              NW
5/ 5                  2       2
                     NW     WSW
5/ 6         14                                                                          10  12      13
              S                                                                           S SSE     SSE
5/ 7   13  13  12  12  12  12                                                             1   2
      SSE SSE SSE SSE SSE SSE                                                           WNW  SE
5/ 8                          1                                                      13  13  12  10
                             SW                                                     SSW  SW  SW SSW
5/ 9                 13  11  12                                                          12  12
                    SSE  SE SSE                                                         SSW SSW
5/10                                                                                      6
                                                                                          S
5/11                      3   5   4                                                   6       9
                        SSE SSE SSE                                                   S     SSW
5/12             12       1   4
                SSE     SSW   S
5/13   10  11   5   6       2
      SSE   S SSE SSW     SSE
5/14          7   5
            SSW WSW
5/15

5/16    9       5   9  10   8
      SSE       S SSE  SE  SE
```

```
                            C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                          STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                                     PERIOD( 5/ 1/77 TO  5/31/77)

                                       HOURLY WIND AND DIRECTION
                                           E STABILITY CLASS

5/17

5/18                        3                                                                   2   2
                            E                                                                  SE   S
5/19    1   1   1   1
      WNW NNW  SW SSE
5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
```

CORPORATION

```
                     C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                   STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                            PERIOD( 5/ 1/77 TO  5/31/77)

                               HOURLY WIND AND DIRECTION
                                  F STABILITY CLASS

                                        HOUR
        1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24

5/ 1    9  12
      SSW SSW
5/ 2                    1                                                              10
                      ESE                                                              SW
5/ 3

5/ 4

5/ 5

5/ 6

5/ 7                                                                                           3   2
                                                                                             SSW WNW
5/ 8    1   2   6   7   5       2                                                                  7
      WNW   W  SE SSE SSW     SSW                                                                  S
5/ 9   10  13
        S   S
5/10                                                                                       6   8   8
                                                                                         SSW  SW SSW
5/11    4   1   2   2                                                                  8       5   1
      SSW   S SSE   S                                                                  S     SSW SSE
5/12    2  11       5           4
       SE   S     SSW           S
5/13                    7
                      SSE
5/14

5/15

5/16
```

```
                    C-B SHALE OIL PROJECT METEOROLOGICAL TOWER SITE
                  STABILITY CLASS DETERMINATION USING DT/DZ (LEVEL 2)
                             PERIOD( 5/ 1/77 TO  5/31/77)

                               HOURLY WIND AND DIRECTION
                                   F STABILITY CLASS

5/17

5/18

5/19           1   3
              SW SSW
5/20

5/21

5/22

5/23

5/24

5/25

5/26

5/27

5/28

5/29

5/30

5/31
```

APPENDIX A
STABILITY WIND ROSE DIAGRAMS

APPENDIX A
STABILITY WIND ROSE DIAGRAMS

According to the data presented in AEC Safety Guide No. 23, the relationships between stability classes and σ_Θ are as follows (the values shown are averages for each stability classification...σ_Θ is the standard deviation of horizontal wind direction fluctuations).

Stability Classification	Pasquill Categories	Average Values σ_Θ (degrees)
Extremely Unstable	A	25.0°
Moderately Unstable	B	20.0°
Slightly Unstable	C	15.0°
Neutral	D	10.0°
Slightly Stable	E	5.0°
Moderately Stable	F	2.5°

Stability wind roses obtained at the trailers in the monitoring network are displayed in the following tables. Because of the relatively low heights above the surface (9 meters) at which the wind data is taken, the stability distributions are skewed toward the unstable end of the spectrum. That is, the unstable classes (A, B, and C) have a much higher frequency of occurrence than would be obtained with the Pasquill method of stability categorization (or with instruments at higher levels).

Table 1 depicts the frequency distribution of Pasquill stability categories based on σ_Θ from data collected by M. M. Pendergast and T. V. Crawford at the Savannah River Plant ("Actual Standard Deviations of Vertical and Horizontal Wind Direction Compared to Estimates from Other Measurements", Symposium on Atmospheric Diffusion and Air Pollution, September 9-13, 1974). Three distinct range patterns of stability class

distributions were observed: low, mid, and high, according to the height at which the σ_Θ measurements were taken.

TABLE 1

FREQUENCY DISTRIBUTION OF PASQUILL STABILITY CATEGORIES

	Stability Categories based on σ_θ							
Height, m	A $\sigma_\theta > 23$	B $18 \leq \sigma_\theta < 23$	C $13 \leq \sigma_\theta < 18$	D $8 \leq \sigma_\theta < 13$	E $4 \leq \sigma_\theta < 8$	F $2 \leq \sigma_\theta < 4$	G $\sigma_\theta < 2$	
10	22.6	13.9	21.8	23.9	8.9	0.4	3.5	LOW RANGE
35	19.3	11.3	19.4	32.4	15.9	0.7	0.5	
91	9.6	6.7	13.5	21.7	29.6	16.4	2.5	MID RANGE
137	9.3	5.3	11.7	20.8	28.5	18.4	5.5	
182	7.0	2.9	6.8	17.1	25.9	25.5	14.7	HIGH RANGE
243	7.7	4.3	9.4	17.7	27.6	22.9	10.4	
304	7.2	3.7	8.0	17.2	28.7	23.9	11.3	

Also, Figure 1 (from D. H. Slade, Meteorology and Atomic Energy, 1968, p. 52) demonstrates that the line representing very stable conditions (which by their nature are associated with light winds) branches into three separate lines near the ground. The curve at the left represents the smallest values of σ_Θ usually observed. The curve that branches off to the right reflects the contribution of very low-level wind direction meander to the total standard deviation. These meandering oscillations decrease in amplitude very rapidly with height under stable conditions. The central curve represents typical inversion conditions. Actually, for a given stability condition, values of σ_Θ will always be greater when the wind is light than when it is strong. This phenomena is most noticeable in the lowest layers.

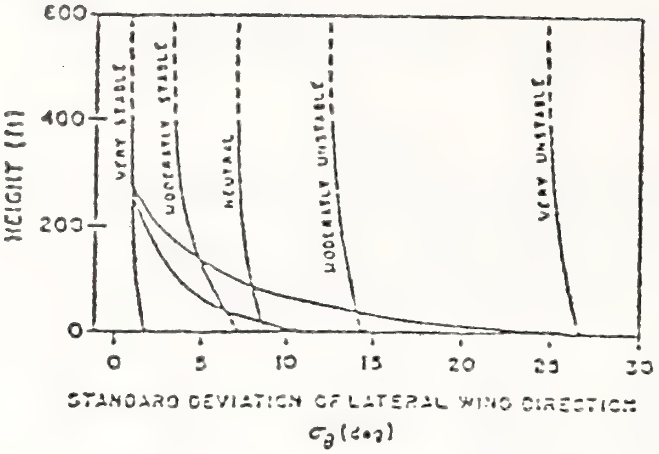

FIGURE 1

The vertical variation of the lateral wind-direction standard deviation (σ_{Θ}) for various stability regimes. The curves represent average or typical conditions with the exception of the two outer "very stable" lines, which represent extremes.

The large surface values of σ_{Θ} for unstable conditions do not decrease very rapidly with height. As in the case of very stable conditions, the greatest lateral fluctuations during a very unstable thermal structure occur with very light winds. As a general rule, for a given insolation condition, increasing wind speeds are associated with profiles of σ_{Θ} that tend toward neutral stability.

The majority of the trailers in the network recorded very light winds throughout the month. Therefore, the stability distributions had a predominance of high σ_{Θ} values and, hence, unstable classifications. Those trailers with the highest average winds (and fewest nearby obstacles to the flow) generally had the more reasonable and representative low-level stability class distributions.

```
                                   STABILITY WIND ROSE DIAGRAM

                                       C-B SHALE OIL PROJECT
                          LEVEL =  8 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

 STABILITY CLASS = A
                                                                   WIND DIRECTION
                           N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED            9     6    7    8    7   10   13   10   20   26   12   18    8    8    9    8
    MPH


    GT   24    :                                                         1                             :    1  0,

  18 -   24    :                                                    1    1         1                   :    3  1,

  12 -   18    :                                          1         0    1    1    0                   :    3  1,

   7 -   12    :       6          2    1    1    2    1    3    9   13   13    4    6    4    7    3 :   75 14,

   3 -    7    :      28    18    8    5    7    7    3   10   10    9   16   11   11   24   19   19 :  205 39,

    LT    3    :      18    22   20   15   20   12   13   10   24   10   17    9   16   20   10    9 :  245 46,

    TOTAL      :      52    40   30   21   28   21   18   23   44   35   47   25   33   48   36   31 /  532

   PERCENT     :      10,    8,   6,   4,   5,   4,   3,   4,   8,   7,   9,   5,   6,   9,   7,   6, :      100,
                      .............................................................................................

                              TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        86(  16,17 %)
```

```
                                   STABILITY WIND ROSE DIAGRAM

                                    C-B SHALE OIL PROJECT
                          LEVEL =  8 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

 STABILITY CLASS = B
                                                      WIND DIRECTION
                         N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED         10    8    6    6    5    4    7   14   16   20   20   15   12   12   12   10
    MPH


     GT   24   :                                                                                    :       0.
   18 -   24   :                                                       4    1                       :     5  1.
   12 -   18   :                                      2   10   27   11    5    1    2    1         :    59 13.
    7 -   12   :    11    2                       2    4   10   28   29   12    4   10   15   13    :   140 31.
    3 -    7   :     8   10   12    5    7    2    8    5    4   14   13    6    5   10   17   10    :   136 30.
     LT    3   :     6    5   12   15   10   14    4    6    3    4    4    4   11    7    6    5    :   116 25.
    TOTAL      :    25   17   24   20   17   16   14   17   27   77   58   27   21   29   39   28    :   456
    PERCENT    :    5.   4.   5.   4.   4.   4.   3.   4.   6.  17.  13.   6.   5.   6.   9.   6.    :      100.
                 ..................................................................................................

                         TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =        39(   8.55 %)
```

```
                                     STABILITY WIND ROSE DIAGRAM

                                        C-B SHALE OIL PROJECT
                          LEVEL =  8 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS - C
                                                            WIND DIRECTION
                      N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED      11   10    8    9    5   13   16   21   27   29   21   19   14   13   15   16
    MPH

   GT   24     :                                              1   10                               :   11  1.

   18 -  24    :                                         3   22   83   18    1                     :  127  7.

   12 -  18    :                               1    5   19   71  204  126   27    6    4   15    5 :  483 28.

    7 -  12    :     24    8    1    1         2    7   36   57   98  130   33   16   33   42   28 :  516 30.

    3 -   7    :     14   29   20   19    9   13   22   25   27   20   29   19   17   19   27   11 :  320 19.

   LT    3     :      9   17   13   16   19   20   12   21   19   35   10   16    9   11   11    7 :  245 14.

    TOTAL      :     47   54   34   36   28   36   46  104  197  450  313   96   48   67   95   51 : 1702

   PERCENT     :     3.   3.   2.   2.   2.   2.   3.   6.  12.  26.  18.   6.   3.   4.   6.   3. :      100.
                 .................................................................................................

                          TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =          53(   3.11 %)
```

CORPORATION

```
                                 STABILITY WIND ROSE DIAGRAM

                                     C-B SHALE OIL PROJECT
                          LEVEL =  8 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS - D
                                                       WIND DIRECTION
                     N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL %
GROUP MAX SPEED     17   12    9    7    7   11   13   20   30   31   26   21   17   12   16   16
    MPH

   GT    24    :                                            19   19    1                             :   39  1.
  18 -   24    :                                        5   69  153   25    3                        :  255  8.
  12 -   18    :     4    1                        6   30  191  348  202   23   11    3   11    4 :  834 25.
   7 -   12    :    13    7    9    1    1    2   17   81  127  162  160   30    9   19   45   41 :  724 22.
   3 -    7    :    28   32   24   26    9   24   65  133  115  100  152   45   22   28   30   22 :  855 26.
   LT     3    :    16   20   38   29   41   31   48   48   55   66  129   33   27   13   11    5 :  610 18.
    TOTAL      :    61   60   71   56   51   57  138  297  576  848  669  134   69   63   97   72 / 3317
   PERCENT     :    2.   2.   2.   2.   2.   2.   4.   9.  17.  26.  20.   4.   2.   2.   3.   2. :      100.
                ........................................................................................

                      TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =       105(   3.17 %)
```

CORPORATION

```
                              STABILITY WIND ROSE DIAGRAM

                                 C-B SHALE OIL PROJECT
                        LEVEL =  8 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS = E
                                                     WIND DIRECTION
                      N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED      18   12    7    5    3    6   13   16   30   28   24   17   21   15   17   14
    MPH


    GT   24   :                                              7   12    1                           :   20  1,

  18 -   24   :       1                                     27   35    9          1                :   73  3,

  12 -   18   :       0    1                        2    3   76   80   80    8    4    3   14    6 :  277 11

   7 -   12   :      23    4    1                   3   16  143   67   61   13    7   16   44   48 :  446 17

   3 -    7   :      44    7    5    7    6   11   28   95  172  120  258   61   24   24   48   38 :  948 36

    LT    3   :      31   13    9   20   28   28   66   61   76  110  232   46   38   24   28   32 :  842 32

    TOTAL     :      99   25   15   27   34   39   99  175  501  424  641  128   74   67  134  124 : 2606

    PERCENT   :      4.   1.   1.   1.   1.   1.   4.   7.  19.  16.  25.   5.   3.   3.   5.   5. :      100
                  ....................................................................................................

                     TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =       146(   5.60 %)
```

II B-1729

```
                              STABILITY WIND ROSE DIAGRAM

                                 C-B SHALE OIL PROJECT
                    LEVEL =  8 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS - TOTAL
                                                       WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED   18   12    9    9    7   13   16   21   30   31   26   21   21   15   17   16
    MPH

   GT   24   :                                              27   42    2                        :   71  1.

  18 -  24   :     1                                     8 119  276   53    5    1              :  463  5.

  12 -  18   :     4    2                   1   14   54  348  660  420   63   22   12   41   15 : 1656 19.

   7 -  12   :    77   21   13    3    2    6   30  140  346  368  393   92   42   82  153  133 : 1901 22.

   3 -   7   :   122   96   69   62   38   57  126  268  328  263  468  142   79  105  141  100 : 2464 29.

   LT    3   :    77   76   91   95  118  106  146  153  181  232  404  111  100   74   66   58 : 2088 24.

   TOTAL     :   281  195  173  160  158  170  316  623 1349 1841 1740  413  244  273  401  306 : 8643

   PERCENT   :    3.   2.   2.   2.   2.   2.   4.   7.  16.  21.  20.   5.   3.   3.   5.   4. :   100.
              ............................................................................................

                   TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =        429(   4.96 %)


                      PERCENTAGE OF A     STABILITY -   6.16 %
                      PERCENTAGE OF B     STABILITY -   5.28 %
                      PERCENTAGE OF C     STABILITY -  19.69 %
                      PERCENTAGE OF D     STABILITY -  38.38 %
                      PERCENTAGE OF E     STABILITY -  30.15 %
```

```
                                         STABILITY WIND ROSE DIAGRAM

                                              C-B SHALE OIL PROJECT
                                 LEVEL = 30 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

 STABILITY CLASS - A
                                                                        WIND DIRECTION
                          N   NNE   NE   ENE    E   ESE   SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW  TOTAL  %
GROUP MAX SPEED          11    7    10    6     5   14    10   13    26   26    10   11    17   15    10   12
    MPH


     GT    24    !                                                    1    2                                    !    3   1

   18 -    24    !                                                    0    0                                    !    0   0

   12 -    18    !                                 1          1       4    0                1    2          1   !   10   3

    7 -    12    !    7     1    3                 2     3    1       4    8     7    3     4    3     9     6   !   61  20

    3 -     7    !   15     7    5     8     6     4     9    6      13   10    11    8    10   16    10     9   !  147  48

     LT     3    !    1     4    9     8     7     9     7    4       8    5     5    4     4    4     5     1   !   85  28

     TOTAL       !   23    12   17    16    13    16    19   12      30   25    23   15    19   25    24    17   !  306

    PERCENT      !    8.    4.   6.    5.    4.    5.    6.   4.     10.    8.    8.   5.    6.   8.    8.    6.  !      100
                    ...........................................................................................................

                           TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =          8(   2.61 %)
```

```
                              STABILITY WIND ROSE DIAGRAM

                                C-B SHALE OIL PROJECT
                      LEVEL = 30 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS = B
                                                       WIND DIRECTION
                     N  NNE  NE  ENE   E  ESE   SE  SSE   S  SSW   SW  WSW   W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED     10    8   9    7   7    8    5   19  14   21   16   14  11   15   12   13
    MPH

   GT   24    :                                                                                :       0.
 18 -   24    :                                       1         2                              :     3  1.
 12 -   18    :                                       2    6   11    9    5         1    1    3 :    38 16.
  7 -   12    :  4    4   1    1   1    2           5    5   12    6    7    6    4   10    7 :    75 31.
  3 -    7    :  6    7   8    6   2    4    6      3    0    6    5    4    6    9    9    8 :    89 36.
   LT    3    :  3    2   1    7   5    2    2      0    1    1    2    4    3    2    2    2 :    39 16.
    TOTAL     : 13   13  10   14   8    8    8     11   12   32   22   20   15   16   22   20 :   244
   PERCENT    :  5.   5.  4.   6.  3.   3.   3.     5.   5.  13.   9.   8.   6.   7.   9.   8. :      100.
              ...........................................................................................

                  TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =          4(   1.64 %)
```

CORPORATION

```
                                     STABILITY WIND ROSE DIAGRAM

                                         C-B SHALE OIL PROJECT
                             LEVEL = 30 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

 STABILITY CLASS = C
                                                                  WIND DIRECTION
                        N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL  %
GROUP MAX SPEED        14    8   10    6    9    8   18   17   27   34   26   18   18   15   16   14
     MPH


    GT   24    :                                               3    9    1                             :   13  2.

  18 -   24    :                                     1        18   43   13    2    1                   :   78 10.

  12 -   18    :        3                            3   14   38   84   35    7    7    8   13    7   :  219 28.

   7 -   12    :       14    8    5         1    3    6   13   12   30   29   12   14   22   34   29   :  232 30.

   3 -    7    :       12   11   14   13   14    6    6    9    7    9    8   15    9   13    7    7   :  160 20.

    LT    3    :        2    3    9    6    6    5    3    7    4    4    5    5    8    5    3    4   :   79 10.

    TOTAL      :       31   22   28   19   21   14   19   43   82  179   91   41   39   48   57   47   :  781

   PERCENT     :       4.   3.   4.   2.   3.   2.   2.   6.  10.  23.  12.   5.   5.   6.   7.   6.   :     100.
                    ..............................................................................................

                           TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =          7(   0.90 %)
```

```
                                     STABILITY WIND ROSE DIAGRAM

                                        C-B SHALE OIL PROJECT
                           LEVEL = 30 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS = D
                                                      WIND DIRECTION
                     N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED     13   10    9   11   10   16   21   27   37   36   26   26   21   21   19   21
    MPH


   GT    24    :                                       4   71   73   10    1                        :  159  6.
 18 -    24    :                                  5   18  165  254   78    6    2    4    3    2 :  537 21.
 12 -    18    :     5                       2   23   61  132  260  150   22    8   30   47   19 :  759 29.
  7 -    12    :    18   12   11    3    4    5   26   27   45  103   74   28   22   47   45   29 :  499 19.
  3 -     7    :    39   22   28   22   20   27   40   32   38   54   62   33   38   21   19   17 :  512 20.
   LT     3    :     2    3    8   12   10    8    6    7   15   10   11    8    7    4    4    2 :  117  5.
   TOTAL       :    64   37   47   37   34   42  100  149  466  754  385   98   77  106  118   69 : 2583
  PERCENT      :    2.   1.   2.   1.   1.   2.   4.   6.  18.  29.  15.   4.   3.   4.   5.   3. :      100.
                 ..........................................................................................

                          TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        5(   0.19 %)
```

```
                              STABILITY WIND ROSE DIAGRAM

                                  C-B SHALE OIL PROJECT
                        LEVELI = 30 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS - E
                                                             WIND DIRECTION
                      N   NNE   NEI  ENE    E   ESE   SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW  TOTALI  %
GROUP MAX SPEED      25    12    14   10    8    18   19    27   38    37   29    26   22    21   22    16
    MPH


    GT    24   :      1                                      9   91    71   10     1                            :  183  4.

  18 -    24   :      3                          1     3    27  181   171   83    13    1     5    8            :  496 12.

  12 -    18   :     18     1     2              3    19   112  201   182  139    19   11    30   51    27  :  815 19.

   7 -    12   :     43    20    15    5    1   13    67   284  207   193   90    27   18    39   60    41  : 1123 26.

   3 -     7   :     50    17    33   52   46   59   101   163  141   224  227    68   54    50   37    50  : 1372 32.

   LT      3   :      6     6    11   12   12   13    32    28   30    41   46    18   16     9   10    11  :  301  7.

    TOTAL      :    121    44    61   69   59   89   222   623  851   882  595   146  100   133  166   129  : 4290

   PERCENT     :      3.    1.    1.   2.   1.   2.    5.   15.  20.   21.  14.    3.   2.    3.   4.    3.  :      100.
               ...........................................................................................................

                  TOTALI NUMBER OF CALMS DISTRIBUTED ABOVE -         10(   0.23 %)
```

CORPORATION

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                                    STABILITY WIND ROSE DIAGRAM

                                      C-B SHALE OIL PROJECT
                        LEVEL = 30 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS - TOTAL                                WIND DIRECTION
                      N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED      25   12   14   11   10   18   21   27   38   37   29   26   22   21   22   21          %
    MPH

   GT   24   :        1                                  13  166  155   21    2                      :  358  4.
   18 - 24   :        3                        1    9   46  364  470  174   21    4    9   11    2 :  1114 14.
   12 - 18   :       26    1    2              6   45  190  381  537  333   53   27   71  112   57 :  1841 22.
    7 - 12   :       86   45   35    9    7   25  172  330  273  346  206   77   64  115  158  112 :  1990 24.
    3 -  7   :      122   64   88  101   88  100  162  213  199  303  313  128  117  109   82   91 :  2280 28.
   LT    3   :       15   18   39   46   41   38   52   48   60   64   72   40   39   25   25   21 :   643  8.
   TOTAL     :      253  128  164  156  136  170  370  840 1443 1875 1119  321  251  329  388  283 /  8226
   PERCENT   :       3.   2.   2.   2.   2.   2.   4.  10.  18.  23.  14.   4.   3.   4.   5.   3. :       100.
                  ..........................................................................................

              TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =        34(   0.41 %)


                      PERCENTAGE OF A     STABILITY -   3.72 %
                      PERCENTAGE OF B     STABILITY -   2.97 %
                      PERCENTAGE OF C     STABILITY -   9.49 %
                      PERCENTAGE OF D     STABILITY -  31.40 %
                      PERCENTAGE OF E     STABILITY -  52.15 %
```

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                                       STABILITY WIND ROSE DIAGRAM

                                          C-B SHALE OIL PROJECT
                                LEVEL =100 FEET   PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS - A
                                                                 WIND DIRECTION
                           N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL  %
GROUP MAX SPEED            9    7    8   15    9    8    8   29   17   31   13   14   20   17   13   10
    MPH


      GT   24    :                                           1         1                                 :    2  1
   18 -    24    :                                           0         0              1                  :    1  0
   12 -    18    :                    1                      1    1    1    1    1    0    1    1        :    8  3
    7 -    12    :     7    2    1    0    1    1    5    1    2    2    6    3    5    1   10    4   :   51 19
    3 -     7    :     9    9    3    5    8   10    6    5    9    9    5    5    5   15    9    5   :  117 43
      LT    3    :     1    4    4    5   10   12   17    7    8    5    5    5    3    4    3    2   :   95 35
      TOTAL      :    17   15    8   11   19   23   28   15   20   18   17   14   14   21   23   11   :  274
      PERCENT    :    6.   5.   3.   4.   7.   8.  10.   5.   7.   7.   6.   5.   5.   8.   8.   4.  :      100
                 ..........................................................................................

                       TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        13(   4.74 %)
```

CORPORATION

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                                        STABILITY WIND ROSE DIAGRAM

                                           C-B SHALE OIL PROJECT
                                 LEVEL =100 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS = B
                                                            WIND DIRECTION
                        N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL  %
GROUP MAX SPEED        12    8   10    5    8    8    6   14   18   17   16   12    7    9   10   14
   MPH


   GT    24     :                                                                                  :        0.
 18 -    24     :                                             1                                    :    1   1.
 12 -    18     :       1                                3    5   11    5    1                  2  :   28  14.
  7 -    12     :       5    2    3         2    1       2    3    6    8    3    4    3   11    3  :   56  29.
  3 -     7     :       8    4    3    3   10    4    4    3    4    2    2    4    2    3   11    4  :   71  36.
   LT     3     :       1    4    2    3    4    2    1    3    3    1    0    2    1    4    5    3  :   39  20.
    TOTAL       :      15   10    8    6   16    7    5   11   16   20   15   10    7   10   27   12  :  195
   PERCENT      :      8.   5.   4.   3.   8.   4.   3.   6.   8.  10.   8.   5.   4.   5.  14.   6.  :      100.
                    ..........................................................................................

                            TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =          5(   2.56 %)
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CORPORATION

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                                    STABILITY WIND ROSE DIAGRAM

                                       C-B SHALE OIL PROJECT
                              LEVEL =100 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS = C
                                                         WIND DIRECTION
                      N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL  %
GROUP MAX SPEED      12   12   10    6    6    9   18   21   25   32   24   22   12   20   16   15
    MPH


   GT   24    :                                              4   12    1                                :   17   3.

 18 -   24    :                                    1    4    7   25   11    2         1                 :   51   9.

 12 -   18    :       1    1                        3   10   25   30   26    8    2    8    8   12  :  134  24.

  7 -   12    :      15    5    4              2    0   10   13   17   18   12   13   23   26   18  :  176  32.

  3 -    7    :       9   10   12   11    4    6   11    8    5    7    6    4    7   10   10    2  :  122  22.

   LT    3    :       4    1    4    3    8    4    0    4    4    2    5    3    5    6    0    4  :   57  10.

    TOTAL     :      29   17   20   14   12   12   15   36   58   93   67   29   27   48   44   36  :  557

   PERCENT    :      5.   3.   4.   3.   2.   2.   3.   6.  10.  17.  12.   5.   5.   9.   8.   6.  :      100.
                   ...................................................................................................

                             TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =        12(   2.15 %)
```

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                                   STABILITY WIND ROSE DIAGRAM

                                      C-B SHALE OIL PROJECT
                          LEVEL =100 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS = D
                                                             WIND DIRECTION
                       N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED       23    10   11   13    9   11   23   33   43   42   32   33   25   25   25   20
     MPH

    GT   24    !                                         8  107  159   26    2    1    1    1       !  305 13.

  18 -   24    !       1                            7   37  150  205   84   13    2    4   14    2 !  519 22.

  12 -   18    !      13              1            13   48   89  186  100   25   14   31   46   32 !  598 26.

   7 -   12    !      24    12   12    5    1    9   22   32   22   73   46   25   20   33   43   25 !  404 17.

   3 -    7    !      25    26   25   19   20   14   16   24   21   30   29   30   36   21   16   17 !  369 16.

   LT     3    !       2     8    7   10   11    6    8    4   11    2   14    4   11    6   12    3 !  119  5.

    TOTAL      !      65    46   44   35   32   29   66  153  400  655  299   99   84   96  132   79 ! 2314

   PERCENT     !      3.    2.   2.   2.   1.   1.   3.   7.  17.  28.  13.   4.   4.   4.   6.   3. !     100.
                    ..........................................................................................

                          TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =        5(   0.22 %)
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CORPORATION

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                                         STABILITY WIND ROSE DIAGRAM

                                             C-B SHALE OIL PROJECT
                               LEVEL =100 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS = E
                                                             WIND DIRECTION
                     N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED     28   17   17   11   12   21   24   31   42   42   34   31   23   24   24   25
     MPH


     GT   24    I    1                             1   21  181  212   44    8         1    1    1 I  471 10.

   18 -   24    I    2                        4   17   72  198  277  147   17    5   10   13    3 I  765 16.

   12 -   18    I   23    9    8         2    4   73  260  258  230  139   28   13   32   90   45 I 1214 25.

    7 -   12    I   54   17   18   10   11   28  136  153  162  156   90   50   29   50   79   57 I 1100 23.

    3 -    7    I   50   19   30   36   56   80  145   94   67   69   65   65   55   55   40   49 I  975 20.

     LT    3    I   10    5   15    4   13   24   40   28   24   23   22   14   18   25   19   16 I  300  6.

      TOTAL     I  140   50   71   50   82  140  412  628  890  967  507  182  120  173  242  171 I 4825

     PERCENT    I   3.   1.   1.   1.   2.   3.   9.  13.  18.  20.  11.   4.   2.   4.   5.   4. I     100.
                 ..........................................................................................

                            TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =        29(   0.60 %)
```

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                              STABILITY WIND ROSE DIAGRAM

                                  C-B SHALE OIL PROJECT
                       LEVEL =100 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

 STABILITY CLASS - TOTAL
                                                         WIND DIRECTION
                       N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED       28   17   17   15   12   21   24   33   43   42   34   33   25   25   25   25
    MPH


    GT   24    :       1                             1   30  292  384   71   10    1    2    2    1 :  795 10.

  18 -   24    :       3                        4   25  113  356  507  242   32    8   15   27    5 : 1337 16.

  12 -   18    :      38   10    8    2    2    4   89  322  378  458  271   63   29   72  145   91 : 1982 24.

   7 -   12    :     105   38   38   15   15   41  163  198  202  254  168   93   71  110  169  107 : 1787 22.

   3 -    7    :     101   68   73   74   98  114  182  134  106  117  107  108  105  104   86   77 : 1654 20.

    LT    3    :      20   24   32   27   48   49   67   49   51   35   49   30   41   46   41   29 :  638  8.

     TOTAL     :     268  140  151  118  163  212  527  846 1385 1755  908  336  255  349  470  310 : 8193

   PERCENT     :      3.   2.   2.   1.   2.   3.   6.  10.  17.  21.  11.   4.   3.   4.   6.   4. :     100.
                 ...........................................................................................

                    TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =        64(   0.78 %)


                             PERCENTAGE OF A      STABILITY =   3.34 %
                             PERCENTAGE OF B      STABILITY =   2.38 %
                             PERCENTAGE OF C      STABILITY =   6.80 %
                             PERCENTAGE OF D      STABILITY =  28.24 %
                             PERCENTAGE OF E      STABILITY =  58.89 %
```

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                                        STABILITY WIND ROSE DIAGRAM

                                           C-B SHALE OIL PROJECT
                                  LEVEL =200 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

 STABILITY CLASS - A
                                                            WIND DIRECTION
                         N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED          9     9    6    5    8    6    6    8   30   34   14   16   22    7   12   10
    MPH


     GT   24    :                                                 1    1                                :     2  1.

   18 -   24    :                                                 0    0              1                 :     1  0.

   12 -   18    :                                                 1    0    2    2    1         1       :     7  3.

    7 -   12    :        4     1              2              3    5    3    2    3    7    1    8    4  :    43 17.

    3 -    7    :        4     4   10    4   12    1    8    8   10   10    7    1    2    4    5   10  :   100 41.

     LT    3    :        6     3   10    2    6    8    9    0    8    7    5    7    2    8    5    7  :    93 38.

     TOTAL      :       14     8   20    6   20    9   17   11   25   21   16   13   13   13   19   21  :   246

     PERCENT    :        6.    3.   8.   2.   8.   4.   7.   4.  10.   9.   7.   5.   5.   5.   8.   9.  :      100.
                    ...........................................................................................

                               TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        17(   6.91 %)
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CORPORATION

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                               STABILITY WIND ROSE DIAGRAM

                                  C-B SHALE OIL PROJECT
                         LEVEL =200 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS - B
                                                    WIND DIRECTION
                    N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  X
GROUP MAX SPEED    10     9   10    3    3    8    4   15   17   19   18   17   10   17   11   12
   MPH


   GT    24    :                                                                                :       0.
  18 -   24    :                                                 2    1                         :     3  2.
  12 -   18    :                                       2    4    6    4    3         1         3 :    23 12.
   7 -   12    :    2     2    3              1         1    6    8    8   10    4    2   12    9 :    68 35.
   3 -    7    :    4     6    4    4    1    6    2    8    1    3    4    3    1    7    5    9 :    68 35.
   LT     3    :    0     7    4    1    1    1    2    2    2    2    2    0    5    1    1    0 :    31 16.
    TOTAL      :    6    15   11    5    2    8    4   13   13   21   19   16   10   11   18   21 :   193
   PERCENT     :    3.    8.   6.   3.   1.   4.   2.   7.   7.  11.  10.   8.   5.   6.   9.  11. :      100.
                 ...........................................................................................

                       TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =         9(   4.66 X)
```

CORPORATION

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                                   STABILITY WIND ROSE DIAGRAM

                                      C-B SHALE OIL PROJECT
                            LEVEL =200 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS - C
                                                            WIND DIRECTION
                       N   NNE   NE   ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED       15    13   10     8    6   10   16   19   25   33   31   18   23   19   17   16
    MPH


     GT   24    :                                              2    3    8                              :   13  2.

   18 -   24    :                                         2   14   21   14    1    2    1              :   55 10.

   12 -   18    :   2     1                          2    6   18   31   31    9    1    6   15    8 :  130 24.

    7 -   12    :  20    10    6    2          1    1    6    9   15   16   14    6   17   24   21 :  168 31.

    3 -    7    :   7     7    5   11    8    8    5    7   10    6    6    4    6   11   12    5 :  118 22.

     LT    3    :   2     3    2    2    0    8    5    1    6    4    1    4    4    5    5    1 :   53 10.

     TOTAL      :  31    21   13   15    8   17   13   22   59   80   76   32   19   40   56   35 :  537

     PERCENT    :  6.    4.   2.   3.   1.   3.   2.   4.  11.  15.  14.   6.   4.   7.  10.   7. :      100.
                ...........................................................................................

                  TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -       16(   2.98 %)
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                                        STABILITY WIND ROSE DIAGRAM

                                           C-B SHALE OIL PROJECT
                                LEVEL =200 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

 STABILITY CLASS - D
                                                                      WIND DIRECTION
                      N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED      23    11   14    8    7   13   22   32   42   46   36   28   29   22   26   22
    MPH


    GT   24    :                                          2   66  229   75   13    3         2      :  390 18.
   18 -  24    :      3                                2   25   77  158  137   29   10    3    6    7 :  457 21.
   12 -  18    :     15          1              2    5   21   54  109  122   41   13   22   42   24 :  471 22.
    7 -  12    :     21     9    9    3    2    2   17   21   37   37   56   29   25   35   55   44 :  402 19.
    3 -   7    :     19    12    7   10   13   13   21   23   32   34   17    5   16   26   12   20 :  282 13.
    LT    3    :      4     4    7    8    6    6    7   11   17   17   11   12    4   16   15    5 :  150 7.
     TOTAL     :     62    25   24   21   21   23   52  103  283  584  418  129   73  102  132  100 : 2152
    PERCENT    :     3.    1.   1.   1.   1.   1.   2.   5.  13.  27.  19.   6.   3.   5.   6.   5. :       100.
                 ......................................................................................

                        TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -          29(   1.35 %)
```

```
                              STABILITY WIND ROSE DIAGRAM

                                  C-B SHALE OIL PROJECT
                        LEVEL =200 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

STABILITY CLASS = E
                                                            WIND DIRECTION
                       N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL  %
GROUP MAX SPEED       30    21   18   13   14   24   24   35   46   48   42   37   32   24   24   25
    MPH


   GT    24     :      1                         1    1   11  152  339  153   12    4    2    2    1 :  679 14.

 18 -    24     :      0     3    1              0   14   56  212  271  249   53    6    8   31   12 :  916 18.

 12 -    18     :     30    10   11    1    2    1   63  246  214  228  187   66   11   28  103   77 : 1278 26.

  7 -    12     :     57    23   13    9    8   25   69  117  130  124  104   69   34   40  104   55 :  981 20.

  3 -     7     :     61    18   31   28   25   65  101   76   66   43   23   43   34   56   49   43 :  762 15.

   LT     3     :     19     3    7   10   14   35   38   29   40   25   17   22   21   30   22   21 :  353  7.

    TOTAL       :    168    57   63   48   49  127  286  535  814 1030  733  265  110  164  311  209 : 4969

   PERCENT      :     3.    1.   1.   1.   1.   3.   6.  11.  16.  21.  15.   5.   2.   3.   6.   4. :      100.
                 ...........................................................................................

                     TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =        59(   1.19 %)
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                                   STABILITY WIND ROSE DIAGRAM

                                     C-B SHALE OIL PROJECT
                          LEVEL =200 FEET  PERIOD( 5/ 1/77 TO  5/31/77)

 STABILITY CLASS - TOTAL
                                                                 WIND DIRECTION
                         N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL  %
GROUP MAX SPEED         30   21   18   13   14   24   24   35   46   48   42   37   32   24   26   25
    MPH


   GT   24       :       1                        1    1   13  221  572  236   25    7    2    4    1 :  1084 13.

  18 -  24       :       3    3    1                   0   16   83  303  452  401   83   19   12   37   19 :  1432 18.

  12 -  18       :      47   11   12    1    2    3   70  275  291  374  346  121   26   57  161  112 :  1909 23.

   7 -  12       :     104   45   31   14   12   29   87  148  187  187  186  125   76   95  203  133 :  1662 20.

   3 -   7       :      95   47   57   57   59   93  137  122  119   96   57   56   61  104   83   87 :  1330 16.

   LT    3       :      34   21   32   24   28   60   64   46   75   57   38   47   39   62   51   36 :   714  9.

    TOTAL        :     284  127  133   96  101  186  375  687 1196 1738 1264  457  228  332  539  388 :  8131

   PERCENT       :      3.   2.   2.   1.   1.   2.   5.   8.  15.  21.  16.   6.   3.   4.   7.   5. :    100.
                 ................................................................................................

                     TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE =         130(   1.60 %)


                          PERCENTAGE OF A      STABILITY =   3.03 %
                          PERCENTAGE OF B      STABILITY =   2.37 %
                          PERCENTAGE OF C      STABILITY =   6.60 %
                          PERCENTAGE OF D      STABILITY =  26.47 %
                          PERCENTAGE OF E      STABILITY =  61.11 %
```
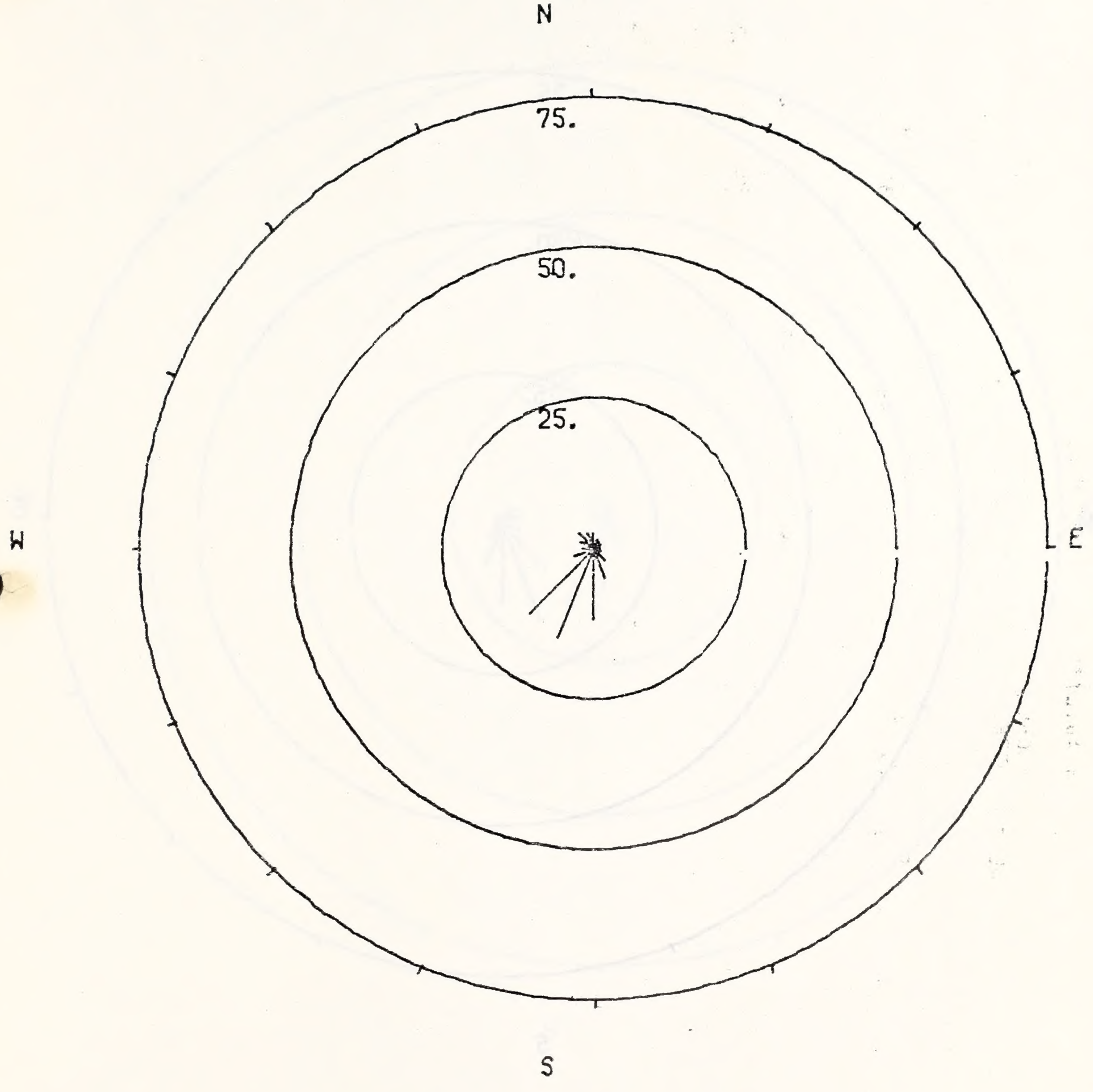
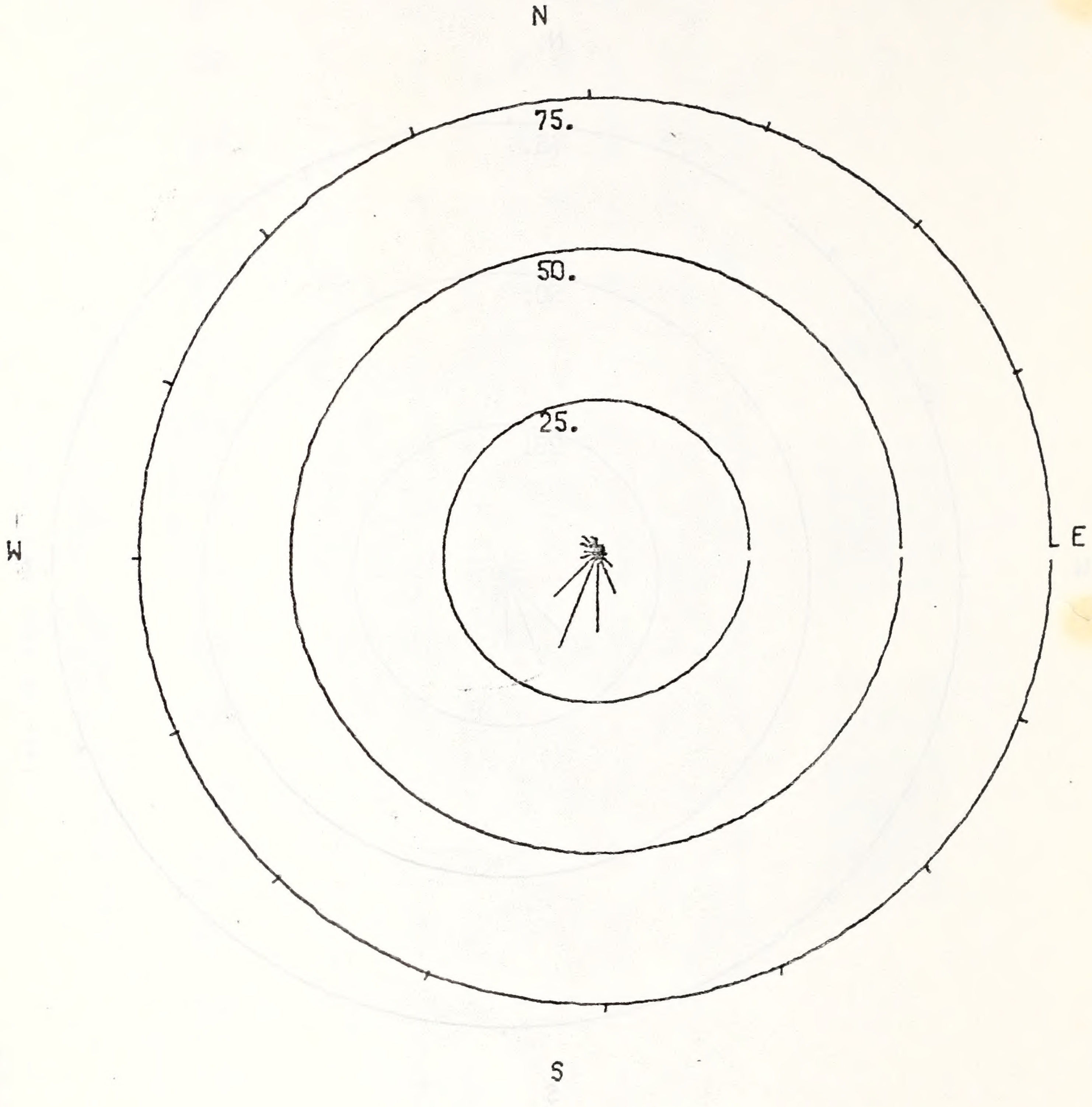
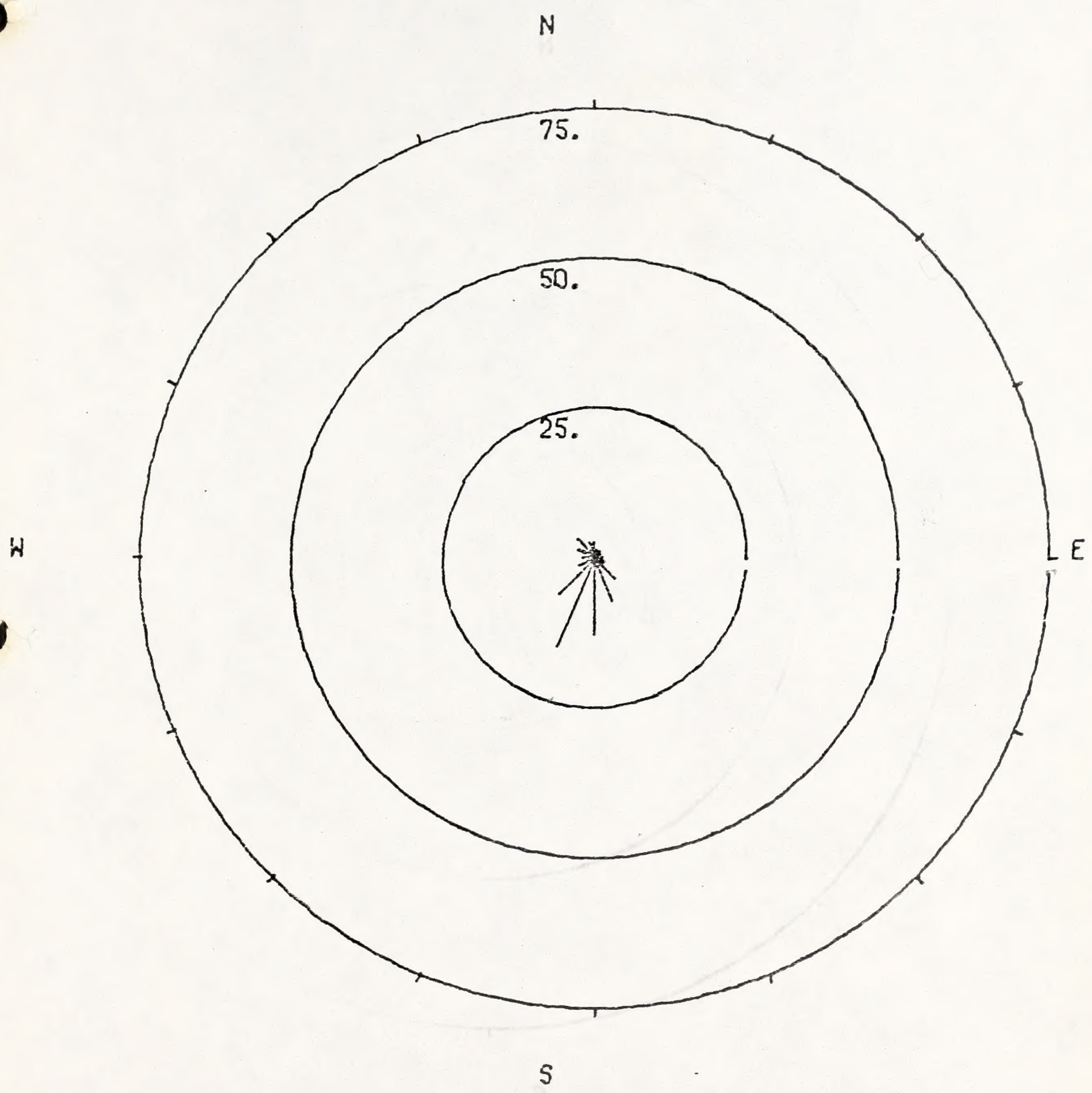



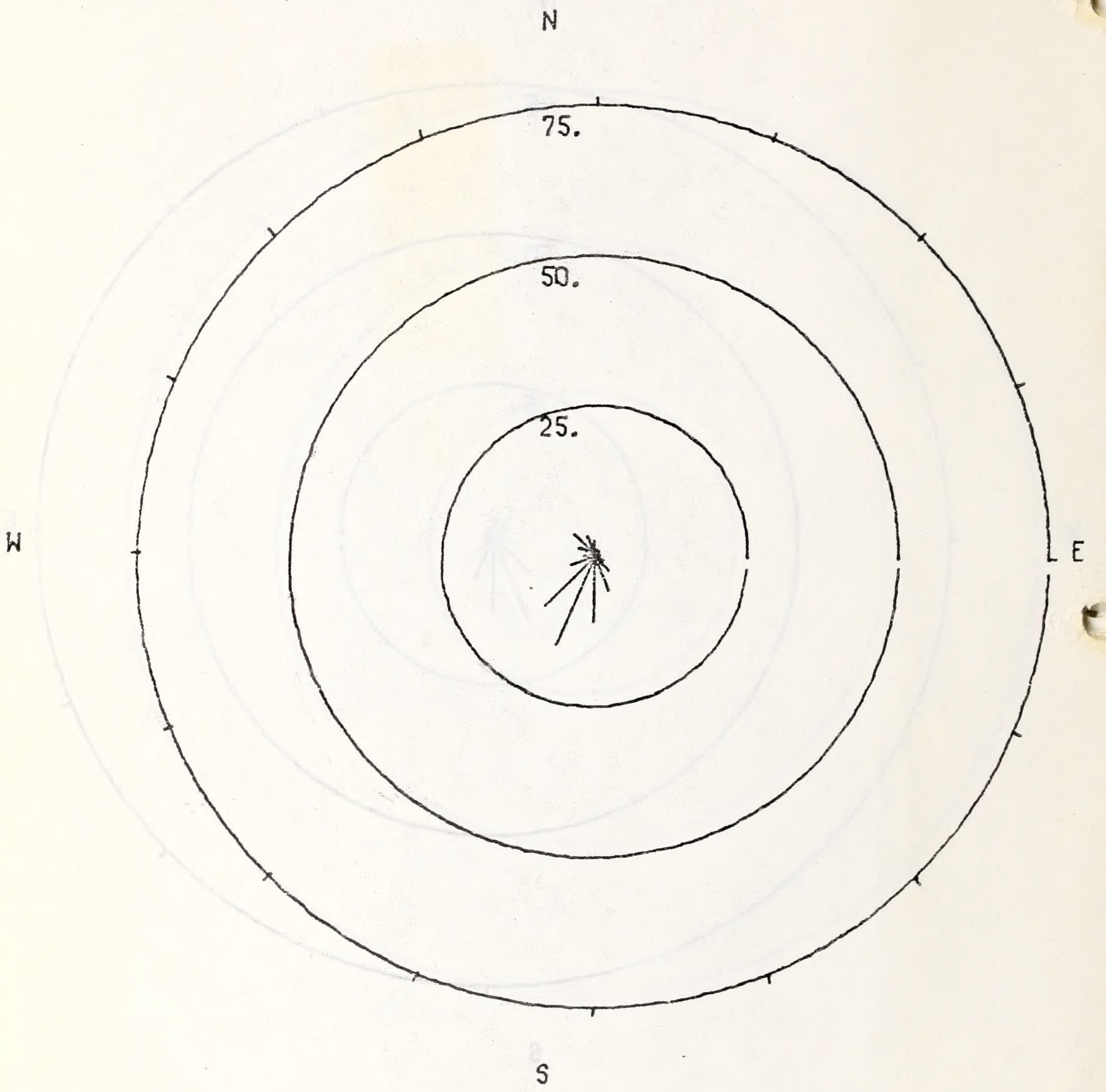
PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 8 FOOT LEVEL



PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 30 FOOT LEVEL



PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 100 FOOT LEVEL



PERCENTAGE OF OCCURRENCE OF WIND DIRECTION FOR 200 FOOT LEVEL